THESIS

FOR THE AWARD OF DEGREE OF

MASTER OF SURGERY (General Surgery)

SESSION 2020-2023

EVALUATION AND COMPARISON OF BREAST LUMP BY MODIFIED TRIPLE ASSESSMENT AND TRIPLE ASSESSMENT

DR. RIYA PARASHAR

SANTOSH DEEMED TO BE UNIVERSITY
NO. 1, SANTOSH NAGAR,
GHAZIABAD-201009, NCR DELHI, INDIA

DEPARTMENT OF GENERAL SURGERY
SANTOSH MEDICAL COLLEGE & HOSPITAL
GHAZIABAD, NCR DELHI

THESIS

EVALUATION AND COMPARISON OF BREAST LUMP BY MODIFIED TRIPLE ASSESSMENT AND TRIPLE ASSESSMENT

M.S. GENERAL SURGERY

Submitted by

Dr Riya Parashar

Batch 2020-2021

Guide

Prof. Dr. Tripta S Bhagat

Santosh Deemed to be University

NO1, SANTOSH NAGAR, GHAZIBAD 201009, NCR, INDIA

SANTOSH
Deemed to be University
(Established u/s 3 of the UGC Act, 1956)

COPY RIGHT CERTIFICATE-DECLARATION BY THE CANDIDATE

I hereby declare that Santosh Deemed to be University, Ghaziabad, (U.P.) shall have the right to preserve, use and disseminate this thesis titled **EVALUATION AND COMPARISON OF BREAST LUMP BY MODIFIED TRIPLE ASSESSMENT AND TRIPLE ASSESSMENT"** in print or electronic format, for academic or research purpose.

Signature of Candidate:

Date:

Place:

SANTOSH UNIVERSITY

DECLARATION BY THE CANDIDATE

I hereby declare that this thesis titled "**EVALUATION AND COMPARISON OF BREAST LUMP BY MODIFIED TRIPLE ASSESSMENT AND TRIPLE ASSESSMENT**" is a bonafide genuine research work carried out by me under the esteemed guidance of my Guide Dr. Tripta S. Bhagat, Professor in the Department of General Surgery, Santosh Medical College & Hospital, Ghaziabad, U.P.

Signature:

Date:

Place:

SANTOSH
Deemed to be University
(Established u/s 3 of the UGC Act, 1956)

CERTIFICATE BY THE GUIDE

This is to certify that thesis titled "**Evaluation and comparison of breast lump by Modified triple assessment and Triple assessment**" is a bonafide genuine research work carried out by Dr. Riya Parashar in partial fulfillment of the requirement for the degree of M.S. General Surgery under my Supervision and guidance in department of surgery, Santosh Medical College & Hospital, Ghaziabad, U.P.

GUIDE:

Prof. Dr .Tripta S Bhagat

Professor

Department of General Surgery

Santosh Medical College & Hospital Ghaziabad- 201001

SANTOSH
Deemed to be University
(Established u/s 3 of the UGC Act, 1956)

CERTIFICATE BY THE CO GUIDE

This is to certify that the thesis titled "**Evaluation and comparison of breast lump by Modified triple assessment and Triple assessment**" is a bonafide genuine research work carried out by Dr. Riya Parashar in partial fulfillment of the requirement for award of the degree of M.S. General Surgery under my Supervision and guidance in department of surgery.

CO GUIDE:

Prof. Dr. Shalabh Gupta

Professor

Department of General Surgery.

Santosh Medical college & Hospital Ghaziabad (UP), India

SANTOSH
Deemed to be University
(Established u/s 3 of the UGC Act, 1956)

CERTIFICATE BY THE CO GUIDE

This is to certify that the thesis titled "**Evaluation and comparison of breast lump by Modified triple assessment and Triple assessment**" is a bonafide genuine research work carried out by Dr. Riya Parashar in partial fulfillment of the requirement for award of the degree of M.S. General Surgery under my Supervision and guidance in department of surgery.

CO-GUIDE

Dr. Ashok K Sharma

Professor & HOD

Department of Radiodiagnosis

Santosh Medical College & Hospital, Ghaziabad- 201001

SANTOSH
Deemed to be University
(Established u/s 3 of the UGC Act, 1956)

CERTIFICATE BY THE CO GUIDE

This is to certify that the thesis titled "**Evaluation and comparison of breast lump by Modified triple assessment and Triple assessment**" is a bonafide genuine research work carried out by Dr. Riya Parashar in partial fulfillment of the requirement for the degree of M.S. General Surgery under my Supervision and guidance in department of surgery.

CO-GUIDE:

Dr. Malay Bajpai

Professor &HOD

Department of Pathology

Santosh Medical College & Hospital, Ghaziabad- 201001

SANTOSH
Deemed to be University
(Established u/s 3 of the UGC Act, 1956)

CERTIFICATE BY THE HEAD OF DEPARTMENT

This is to certify that the thesis titled "**Evaluation and comparison of breast lump by Modified triple assessment and Triple assessment**" being submitted by Dr. Riya Parashar in partial fulfillment of the requirement for award of the degree of M.S. General Surgery is based on bonafide work carried out by her under my guidance and supervision and is completed to my full satisfaction.

Prof. (Dr.) Sameer Q. Naqash

M.B.B.S., M.S.

Professor & HOD

Department of General Surgery

Santosh Medical college & Hospital Ghaziabad-201001(U.P)

SANTOSH
Deemed to be University
(Established u/s 3 of the UGC Act, 1956)

ENDORSEMENT BY THE DEAN OF THE COLLEGE

This is to certify that the protocol titled "**Evaluation and comparison of breast lump by Modified triple assessment and Triple assessment**" is a bonafide research work carried out by Dr. Riya Parashar herself under the esteemed guidance of Prof Dr Tripta S Bhagat Professor General Surgery, Santosh Medical College & Hospital and is presented before the ethical committee of Santosh University, Ghaziabad for requisite approval.

Prof. Dr. Alka Agarawal

Dean

Faculty of Medical Sciences

Santosh Medical College & Hospital

Santosh University

Ghaziabad-201001 (U.P)

SANTOSH
Deemed to be University
(Established u/s 3 of the UGC Act, 1956)

ANTI-PLAGIARISM DECLARATION/UNDERTAKING

I, **Dr. Riya Parashar**, hereby declare that the present thesis titled **"Evaluation and comparison of breast lump by Modified triple assessment and Triple assessment"** under the guidance of **Dr. Tripta S. Bhagat** at Santosh Deemed to be University is a bonafide/original research work. I also hereby declare that there is less than 10% similarity and the present research work has not been submitted for the award of any degree/diploma of the same institution where the work was carried out or at any other institution.

Signature of the Guide **Signature of the Student**

I have verified the contents of the thesis and it has less than 10% similarity.

Dr. Jyoti Batra

Dean Research

Santosh Medical College & Hospital

Santosh Deemed to be University

Ghaziabad – 201001(U.P.

ACKNOWLEDGEMENT

With a heartful modesty, it is a genuine pleasure to express my deep sense of thanks and gratitude to my mentor, teacher and Guide ***Dr. Tripta S Bhagat****, Vice-chancellor and Professor Department of General Surgery. It has been my delightful pleasure to walk under the shadow of such an eminent advisor and mentor for my study. I am grateful for her unwavering support, timely counsel, meticulous inspection, scientific approach and scholarly advice and guidance throughout my post-graduation which has helped me accomplish this research. She has always been approachable, understanding, calm and reasonable to our problems and with nippy and witty solutions for the same.*

I would also thank from bottom of my heart to ***Dr. Shalabh Gupta****, Dean Academics & Professor of General Surgery for becoming my Co-guide and supporting me every time. His presence and guidance made this research a wonderful journey.*

I owe a deep sense of gratitude to ***Dr Ashok k Sharma*** *HOD Radiology* ***and Dr Malay Bajpai*** *HOD Patholgy who is also my Co-guide in this thesis. I would like to thank her for all the opportunities, guidance, insightful comments and encouragement. Her support and knowledge have helped me achieve this timely thesis. This same amount of support and guidance was also provided by all the seniors, my colleagues and juniors of the surgery department who helped me through my thesis work and for which I shall always be in debt.*

I owe a great debt to father ***Mr.Rajesh Parashar*** *and my mother* ***Mrs. Manorama Parashar****. I feel myself lucky, for having such caring understanding parents whose love and guidance throughout my life has shown me the right path, motivate me to work hard and achieve the goals when I felt disheartened or lost and to cherish every big and small achievements in this exceptionally enlightening phase of my small life. Their love and blessings always helped me and kept my dreams alive. I owe a big thanks to my sister* ***Maitri****, and brother* ***Parikshit*** *for supporting all the time in preparing my thesis.*

I would also extend thanks to my mentor ***Dr Rahul Gautam*** *for believing in me and supporting me and for always showing me the right direction.*

I would also like to extend my thanks and appreciation for all my Consultants ***Dr. Sameer Q Naqash, Dr. Gyanendara S. Mittal, Dr Rahul Gautam, Dr Aparajeeta, Dr. Sandeep Moolchandani, Dr. Siddharth, Dr. Rachit Goel, Dr. Rajiv Verma, Dr Shishir Kumar, Dr Naveen Solanki, Dr. Anu Vibhu, Dr. Kartik Kaistha and Dr. Saikh Kasif Sahajada*** *for their support and valuable comment. They also have been role models in many ways commendable with learning in every step of our journey in this institution thus leaving a lasting impression on our mind n souls.*

I would like to thank all my Seniors ***Dr. Abhishek, Dr. Anshul, Dr. Alok, Dr. Jebin, Dr. Sagar, Dr. Angelin and Dr. Priyanka Jadaun****; this thesis could not have been completed without their help and support.*

My heartfelt thanks to my Colleagues ***Dr. Abhinav, Dr.Ruksana, Dr. Sayandeep, Dr. janani, Dr. Nithin, Dr. Nida, Dr. Tanuj, Dr. Priyanka*** *who over these years have become like an extended family in a place far from home. With their help and support this journey has become memorable and easy sail thorough the tidy waves.*

*I would also avail this opportunity to thank all my friends****, Vivek Jethi, Dr Surbhi Thakur, Dr Priya Gaur, Dr Aarchy, Dr Nandini*** *here and back home who have been a constant shore for all my ups and downs in this memorable voyage. Success has no meaning if you are unable to share it with our loved ones. Their happiness in your triumph adds stars to the moony nights of your celebration I would like to thank all my juniors (****Dr. Adhar, Dr. Mansi, Dr. Deep, Dr. Sudhakar, Dr. Shilpa, Dr. Soha, Dr. Shreyansh, Dr. Rohan, Dr. Shrishti and Dr. Austin****) this thesis could not have been completed without their help and support.*

I shall always cherish my association with Department of General Surgery, Santosh Medical College & Hospital, Ghaziabad where I had this opportunity of carrying out the present study and where I have learned and benefited immensely to become a good Surgeon.

No study can be completed without the co-operation of the patients involved and hence I express my sincere thanks and respect to all my patients from whom I have learned so much during this research. Their righteous feedback have been the true essence of my research.

Above all, I remember our divine GODs for giving me this opportunity and blessing me with such empowering teachers, institutions intellect and skill in accomplishing this work as a success.

Dr Riya Parashar

(Batch2020-2023)

INDEX

CONTENT	PAGE NO.
INTRODUCTION	**1**
AIMS AND OBJECTIVE	**4**
REVIEW OF LITERATURE	**5**
MATERIAL AND METHOD	**27**
RESULT AND OBSERVATION	**29**
DISCUSSION	**45**
CONCLUSION	**51**
BIBLIOGRAPHY	**52**
PROFORMA	**57**
INFORMED CONSENT	**62**
PLAGIRSM CERTIFICATE	**63**
MASTER CHART	**64**

ABBREVIATIONS

BI-RADS	Breast Imaging-Reporting and Data System
CBE	Clinical breast exam
FNA	Fine needle aspiration
FNAC	Fine needle aspiration cytology
IDC	Invasive ductal carcinoma
MTT	Modified triple test
NPV	Negative predictive value
PPV	Positive predictive value
QTS	Quadruple score
TT	Triple test
USPSTF	United states preventive services task force
US	Ultrasound

RESULT FIGURES AND TABLES

CONTENT	*PAGE NO.*
DISTRIBUTION OF PATIENT ACCORDING TO AGE	*29*
DISTRIBUTION OF PATIENT ACCORDING TO LUMP SIZE	*30*
DISTRIBUTION OF PATIENT ACCORDING TO DURATION	*31*
DISTRIBUTION OF PATIENT ACCORDING TO SYMPTOM ASSOCIATED WITH LUMP	*33*
DISTRIBUTION OF PATIENT ACCORDING TO MAMMOGRAM	*35*
DISTORTION OF PATIENT ACCORDING TO DISTORTION	*36*
DISTRIBUTION OF PATIENT ACCORDING TO SONOGRAPHY	*37*
DISTRIBUTION OF PATIENT ACCORDING TO BIRADS	*39*
DISTRIBUTION OF PATIENT ACCORDING TO FNAC	*40*
DISTRIBUTION OF PATIENT ACCORDING TO MANAGEMENT	*41*
DISTRIBUTION OF PATIENT ACCORDING TO IMPROVEMENT	*43*

INTRODUCTION

INTRODUCTION

Breast lumps or masses are very common, particularly among women of reproductive age. Over 25% of women are affected by breast disease in their lifetime, and the vast majority of these cases will initially present as a new breast mass in the primary care setting. Breast masses have various causes, from physiological adenosis to highly aggressive malignancy. Although most of the breast masses are present in adult women, children and men can also be affected. Indeed, male breast cancer is a well-documented condition and requires a considered index of suspicion for its timely diagnosis and intervention (Kamal et al., 2020)[1].

A breast lump is any discrete mass noticed by the patient or physician. Rarely, nonpalpable masses may be detected by screening mammography. The most important risk factors are menarche, menopause, use of steroids, birth control pills, previous breast surgery, history of breast trauma, and radiation exposure (Haagensen, 1971)[2].

Clinical presentations of benign breast disease are pain, lumps, or breast discharge. Breast cancer in its early stage does not cause pain. When cancer grows, it causes changes in the size or shape of the breast. In advanced cases, the tumour can show signs of skin ulceration and fixation to the chest wall, lymphadenopathy and distant metastasis (Figueroa et al., 2016)[3].

Breast cancer is the most common female cancer worldwide, representing nearly a quarter (25%) of all cancers, with an estimated 1.67 million new cancer cases diagnosed in 2012. Women from less-developed regions (883,000 cases) have slightly more chances compared to more developed (794,000) areas (Ferlay et al., 2015)[4]. According to the latest edition of the United States Preventive Services Task Force (USPSTF), biennial screening mammography is recommended for all women aged 50–74 years (Siu, 2016)[5].

Like any tumour, breast tumours are classified into benign and malignant. The majority of breast tumours are benign. The common benign breast tumours are fibroadenoma and breast cysts. The most frequently diagnosed breast cancers are ductal carcinoma in situ (85%–90%), lobular carcinoma in situ (about 8%), and infiltrating lobular carcinoma (10%–15%) (Børresen-Dale, 2003)[6].

It often becomes difficult to clinically differentiate between benign and malignant lesions, especially in the early stages. Furthermore, cancer awareness has created phobia in most women's minds, and they want to be sure that they are not suffering from cancer breast, as the name itself is taken by the general masses to be a forebearer of death. In many countries, increasing numbers of women now undergo screening for malignant breast disease and ask for further management of their asymptomatic breast disease. Previously for clinically

suspicious lesions, the biopsy was the only reliable tool, but with newer imaging and pathological evaluation techniques, the field of diagnosis has been revolutionised. However, the main problem is that none of the tools for diagnosis is 100% accurate. Hence, to minimise delay in treatment and to avoid unnecessary outpatient follow-up and open biopsy, many breast clinics have evolved a policy of "triple test" with immediate reporting to provide a "One Stop diagnostic Service" where patients are evaluated by history and physical examination, imaging (mammography, breast USG, and MRI) and FNAC or core needle biopsy to establish a diagnosis and management plan for each patient on the day of the clinic visit (Dehn et al., 1987)[7].

There are various non-invasive imaging modalities for diagnosing breast lesions, e.g. ultrasonography, mammography, MRI, Doppler scanning, contrast-enhanced ultrasound, etc., but none are reliable (Ghimire et al., 2008)[8]. Their cost and availability also limit their use. There are three pathological procedures for diagnosing breast cancer, i.e., fine needle aspiration cytology, core needle biopsy and surgical biopsy (Nagar et al., 2012)[9].

FNAC has an advantage over core needle biopsy as it is more cost-effective, and both have comparable predictive values. Fnac is minimally invasive, causing pain similar to prick for blood sampling (Nagar et al., 2012)[9].

Open/surgical biopsy is a gold standard in diagnosing breast cancer. It is invasive, time-consuming, associated with significant patient anxiety and exposes patients to more than one surgical procedure (Ghimire et al., 2008)[8].

Open biopsy is unlikely to be an initial diagnostic approach unless a percutaneous or image-guided biopsy is impossible. It may become necessary to investigate further discordant findings (Gutwein et al., 2011)[10].

The major disadvantage of FNAC is its inability to distinguish between CIS (carcinoma in situ) and invasive malignancy, along with a high rate of insufficient samples. Hence a diagnostic tool must be employed for pre-operative diagnosis of breast cancer which is least invasive, cost-effective and readily available with accuracy comparable to conventional surgical biopsy (Ghimire et al., 2008)[8].

A combination of three modalities called triple assessment is currently employed in diagnosing all breast lesions. It includes a physical examination, radiological imaging (mammography) and pathology (FNAC). It is a simple and affordable test with non-invasive or minimally invasive modalities. It is performed on an OPD basis and requires no hospitalisation (Jan et al., 2010)[11]. Furthermore, it is a readily available and reliable diagnostic tool with a sensitivity of 93% and a specificity of 95.2% (Kristoffersen Wiberg et al., 2002)[12].

The triple test was first described by Johansen (1975)[13] in 1970 to evaluate palpable breast masses by physical examination, mammography, and fine needle aspiration cytology. Hermansen (1987)[14] brought this into clinical practice 1987. Due to the limitation of mammography, a modified triple test (MTT) was introduced by Vetto et al. (1996)[15]. In the MTT, the ultrasonogram is replaced by mammography.

The present study was designed to evaluate and compare breast lumps by modified triple assessment and triple assessment.

AIMS AND OBJECTIVE

AIMS AND OBJECTIVE

Aim:

Evaluation of breast lump by modified triple test and triple test. Components of Modified Triple Test-Clinical examination. Imaging study- Ultrasound Tissue diagnosis. – FNAC. Details of triple test –Clinical examination Imaging study –Mammography Tissue diagnosis-FNAC.

Objectives:

1. To assess the overall diagnostic accuracy the of Modified triple test and Triple test
2. This study is done to determine the clinical characteristics of palpable breast lumps, followed by Modified triple test and Triple test, ,which includes a complete clinical examination of the Breast lump, Ultrasonography of the Breast, Mammography of the breast and Fine Needle Aspiration Cytology of the Breast lump.

REVIEW OF LITERATURE

REVIEW OF LITERATURE

Embryology

In the fifth or sixth week of fetal growth, two grouped ectoderms (papillae, milk lines) of the stomach wall surface can be seen in the embryo. Each breast will form when the ectoderm grows internally to form the primary tissue buds in the breast. After that, the prominent buds start the growth of other buds. The main (mastoid) duct develops, which causes a superficial breast pit. In the early stage, mesenchymal hyperplasia turns the mammary glands into nipples. If the pit cannot be increased over the skin level, it will trigger upside-down nipple areas. This congenital malformation occurs in 4% of infants. Breast enlargement may be evident and produce discharge, called witch milk. These transient occasions happen in feedback to mother's hormonal agents that cross the placenta. The breast does not establish in women until puberty. When it is due to ovarian estrogen and progesterone, it causes the proliferation of epithelial and as connective tissue elements.

Anatomy

Mammary gland or breast is a modified sweat gland and is one of the accessory reproductive female organs. It is situated in the chest wall in the superficial fascial layer of the pectoral region a part of the breast enters the axillary region by piercing the deep fascia and it is called as the Axillary tail of Spence. The extent of the breast varies from person to person and it usually extends vertically from the second rib to the sixth rib and horizontally from the sternum to the mid axillary line. Deeper to the breast are the deep fascia of pectoralis major and beyond this are the muscles, the Pectoral muscles, the Serratus Anterior and the External oblique muscle..

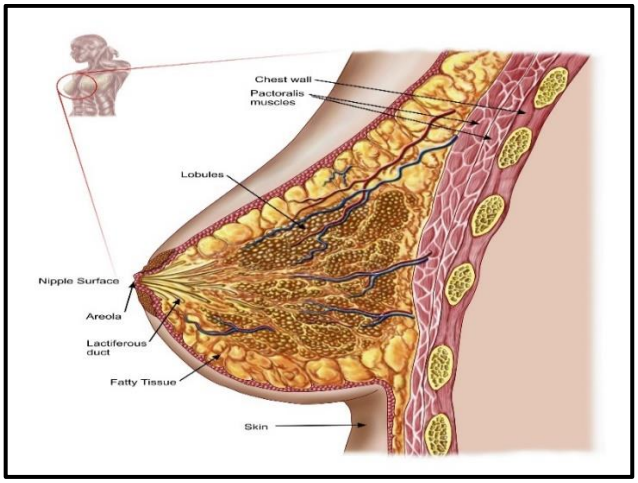

Figure 1- Breast anatomy

Functional Composition

Breasts are modified sweat glands composed of wattles, and lobules spread in adipose tissue and connective tissue. The air duct drains from each lobule. They integrate to develop a breast air duct, which drains from each lobe. The mammary ducts combine simply below the nipple to form the mammary sinuses. The practical secretory device in lactation is the terminal lobular unit.

The breast is made up of 15–20 lobes—Cooper's suspensory ligament from the pectoral fascia inserts into the dermis. Retromammary space is the space between the pectoral fascia and breast parenchyma axillary of Spence extends from the upper outer quadrant. The upper outer quadrant has more breast tissue. The size, contain also thickness of breasts vary substantially between individuals. Prenatal breasts are hemispherical, and the top of the nipple area is undoubtedly level. With hormone stimulation during pregnancy and lactation, the breast become bigger more prominent, their volume and thickness also increase When ageing the breasts become level, loosened, and also droop, besides reducing in volume.

Blood Supply, Innervation, and Lymphatics

The primary blood supply to the breast comes from (1) the perforated branch of the internal mammary artery; and (2) the side branch of the posterior intercostal artery, as well as the branch from the axillary artery, consisting of the greatest thoracic, lateral, and thoracic branches of the thoracic artery. The second, third, and fourth former intercostal perforators, and branches of the internal mammary artery create, the median mammary artery in the breast. The veins of the breast and also chest wall surface adhere to the direction of the artery, and the veins flow to the armpit.

The external skin branches of the third to sixth intercostal nerves provide sensory nerves for the breast as well as the anterolateral upper body wall surface. Lymphatic vessels are usually alongside capillaries. The boundary of the axillary lymphatic drainage is not well specified. The axillary lymph node groups recognised by the surgeon are: (1) the axillary vein group (outer side), consisting of four to six lymph nodes located in the middle or back of the vein and receiving most of the upper limb lymphatic drainage; (2) external breast glands group (anterior or pleural group), consisting of five or six lymph nodes, which are connected to the lateral thoracic vessels along the lower border of the pectoralis minor muscle and receiving most of the lymphatic drainage from the outside of the breast; (3) the main group consisting of three or four groups of lymph nodes. These lymph nodes are buried in the axillary fat, located at the back of the small axillary muscles, and receive lymph drainage from the axillary veins, outside the mammary glands and the shoulder scapular group directly

from the breast; (4) The subclavian group consists of 6–12 groups of lymph nodes, which are located behind the upper border of the pectoralis minor muscle and drain from all other axillary lymph node groups; and (5) the interpectoral muscles (Rotter's node), composed of one to four lymph nodes, are located between the pectoralis major and pectoralis minor muscles and receive lymphatic drainage directly from the breast. .

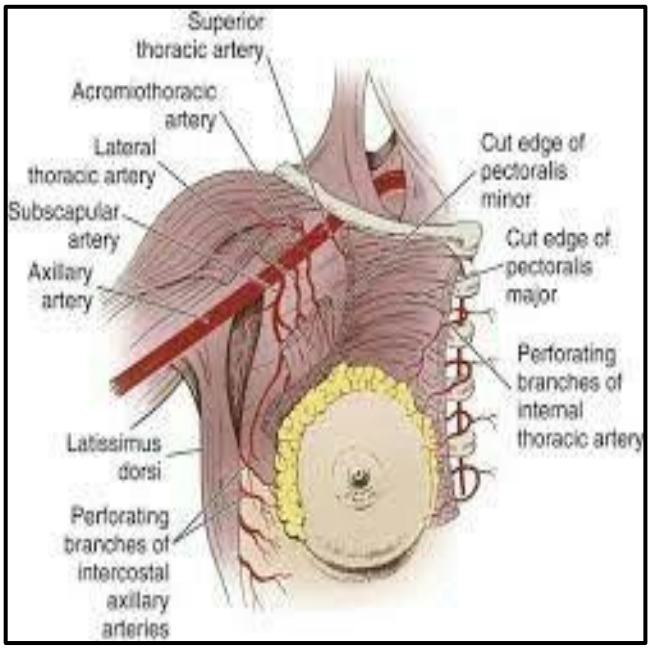

Figure 2- Blood supply to breast

Breast Masses

Breast mass complaints are common in the clinical setting, and physicians should be comfortable performing breast mass evaluations. One study found that 40% of breast complaints in women aged 40-69 were for breast lumps or masses (Elmore et al, 1998)[16]

The discovery of a breast lump can cause significant anxiety and distress to the patient. Fortunately, approximately 90% of masses are benign in women in their 20's to early '50s, with fibroadenomas and cysts being the most common benign masses (Svane and Silfverswärd, 1983)[17.] Table 1 shows the types of breast masses.

TABLE 1: Common Breast Masses (Esserman Laura and Joe Bonnie, 2015)[18]

Benign	**Cancerous**
Fibroadenoma	Infiltrating Ductal 76%
Cyst	Invasive Lobular 8%
Traumatic Fat Necrosis	Ductal Carcinoma In Situ 7%
Fibrocystic Changes	Lobular Carcinoma In Situ
Intraductal Papillomas	Mucinous 2.4%
Lipoma	Medullary 1.5%
Abscess	Tubular 1.2%
Adenomas	Papillary 1%
Galactocele	
Diabetic Mastopathy	
Hamartomas	
Sarcoidosis	
Idiopathic Granulomatous	
Mastitis	
Pseudo angiomatous Stromal	
Hyperplasia	
Radial Scars	
Epithelia Related Calcifications	

The overall incidence of breast cancer has decreased by 0.9%, and mortality decreased by 2.1% from 2000-2009. According to the CDC, the incidence of breast cancer remains the most common cancer diagnosed in women (NCHS Data Brief, 2013)[19]. It is essential to work up any breast mass in a thorough and concise process to prevent missed diagnoses and ensure an early diagnosis. Being diagnosed with a breast mass can be pretty frightening to a patient, and efficient management could greatly help alleviate worry and stress for the patient.

Breast cancer

Breast cancer is the most common malignant tumour in women in the world. Breast cancer patients account for as much as 36% of oncological patients. An estimated 2.089 million women were diagnosed with breast cancer in 2018 (Nardin et al., 2020)[20]

This malignant tumour is increasing in all regions of the world, but the highest incidence occurs in industrialised countries. Almost half of the cases on a global scale are in developed countries (Bellanger et al., 2018)[21].

This trend is mainly due to the so-called Western lifestyle, associated with a poor diet, nicotinism, excessive stress and little physical activity. In the case of breast cancer, mammography has become recognised as screening. The most significant mammography value is observed in women aged 50–69 years (Bellanger et al, 2018)[21].

Classical mammography is characterised by 75–95% sensitivity and specificity at 80–95%. For women with Magnetic resonance mammography is used as a screening test for women with suspected hereditary br Suppose a suspicious lesion is found in mammography. In that case, an ultrasound examination is performed and, if necessary, a thick needle biopsy along with a histopathology et al. tumor (Elmore et al, 2005)[22].

The specific cause of carcinogenesis has not yet been established, but several risk factors conducive to the developing cancer are known. One of the most important, as also indicate the epidemiological data described above, are the gender, and degree of economic development of a given country. No less important are hormonal factors, mainly related to the time of exposure to estrogens, procreative a spectators, including the number of children born, the age of birth of the first child, or breastfeeding. Great importance in the development of breast cancer is attributed to genetic factors, the use of hormone replacement therapy,

improper diet, and the resulting obesity. Among the significant risk factors for developing breast cancer, hormonal contraception, alcohol consumption and exposure to ionizing radiation at a young age are also mentioned.

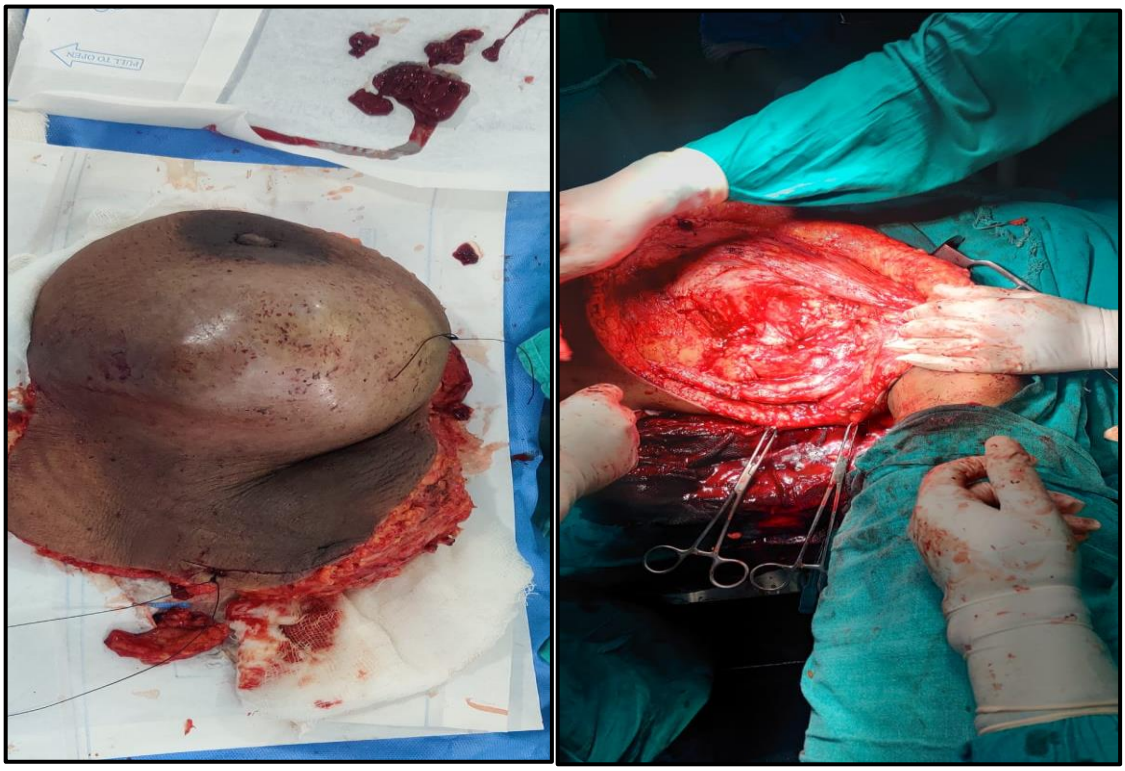

Figure 3-Breast Carcinoma

Evaluation

The evaluation of a patient with a breast lump requires a thorough medical history, including when and how the patient discovered the lump, progression the of size, and any associated symptoms (Morrow, 2004)4. It is also important essential if and assess any risk factors for breast cancer, including age, race, family history, smoking and various others (Table 2). In 2009, the United States Preventive Services Task Force (USPSTF) recommended routine self-breast examinations (category D). However, the January 2016 USPSTF breast cancer screening guidelines removed self-breast examination recommendations as it now supports patients being aware of changes in their bodies and discussing these clinicians.

TABLE 2: Common Risk Factors for Breast Cancer (Sabel and Micahel, 2015)[23]

- Gender (females are 100 times more likely to be affected)
- White Race
- Higher Socioeconomic Class
- Northeastern United States
- BMI >33, 27% increased Risk
- Increase in Age
- Family History (BRACA-1 and BRACA-2 gene positive)
- Environmental Exposure to Radiation
- Benign Breast Conditions
- Smoking
- More than one alcoholic drink a day
- Late pregnancy
- Early first Menses
- Nulliparity
- Late Menopause
- DES Exposure in Utero
- Estrogen Supplementation
- Increased Breast Density
- Prior Biopsies

Physical examination

A thorough clinical breast exam (CBE) is imperative in assessing a breast mass. The physician should start the CBE by looking at both breasts and noting any abnormalities or asymmetry. The visual inspection typically begins with the patient in the sitting position. The patient should be asked to place her arms above her head, which may cause dimpling from a fixed mass. A mirror is sometimes helpful for looking the inferior portions of the breast. The breasts should then be checked for skin color or changes, texture changes, skin thickening and g, dryness, and fit for skin color changes, texture changes, skin thickening, dryness, and temperature changes (Bickley Lynn, 2007; Klein, 2005)[24,25]. The nipples should be checked for inversion, and the areola should be checked for relative symmetry, as these may be signs of an underlying mass. Only after a thorough visual exam should the physician then palpate the breasts. The visual exam portion may essential clues to surface area differences and help the clinician be more specific and attentive particular in areas during palpation. The palpation portion of the CBE should be performed while the patient is in the supine position. Palpation of breasts should be achieved systematically fashion by following a linear or circular pattern. It is considered good practice to overlap palpations so as to avoid missing areas. Axillary, supraclavicular, and infraclavicular lymph nodes should also be palpated in this systematic process. Finally, the nipples should be expressed to check for any nipple discharge or bleeding.

Imaging

Mammography

Plain x-ray mammography is the most common imaging modality used for screening and diagnostic purposes. The latest 2016 breast cancer screening guidelines by the USPSTF recommend a screening mammography every two years for women aged 50 to 74 years (Grade B). For women under 50, the decision to start screening mammography should be a individual(Grade C). If a mass is found on screening mammography or on the Ce CBE, a diagnostic mammogram should be ordered as the first line testing for women over l (Sabel and Micahel, 2015)[26]. If a breast mass is i Suppose a breast mass is identified in a woman under 30. In that case, he first-linechoice for diagnostic purposes due to the generally increased density of breast tissue in this group.

Mammograms can pick up two types of lesions: soft tissue masses and clustered micro calcification masses. Radiologists use the Breast Imaging-Reporting and Data System (BI-RADS) criteria to assess whether a group is benign or potentially malignant (Klein, 2005)[25]. The American College of Radiology developed the BIRADS system to describe mammographic findings(Table3).

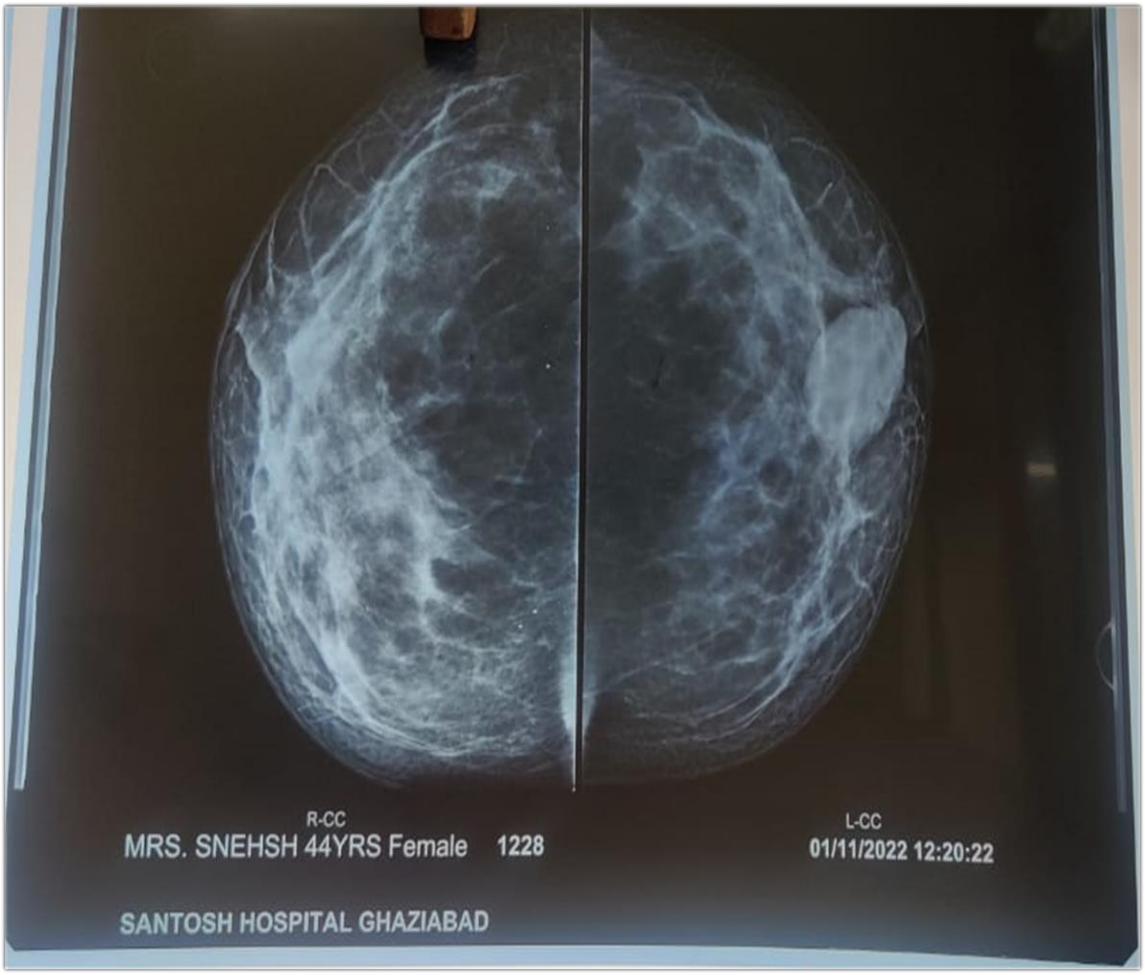

Figure 4- Mammography

TABLE 3: BI-RADS Assessment Categories (Klein, 2005)[25]

0: Incomplete
1: Negative
2: Benign finding(s)
3: Probably benign
4: Suspicious abnormality
5: Highly suggestive of malignancy
6: Known biopsy-proven malignancy

Mammograms may also be helpful to the surgeon in determining the location and size of the mass. Further, preoperative mammograms can aid in the follow-up assessment of the postoperative course (Esserman Laura and Joe Bonnie, 2015)[18].

Some clinicians may tend to perform the CBE quickly due to the exam's sensitive and potentially embarrassing nature. However, it should be noted that more extensive exams tend to be more thorough and allow more masses to be identified (Campbell et al, 1991)[27].

The CBE alone detects up to 10% of breast cancers, while more than 90% of breast cancers are found through mammograms (Smart et al, 1993)[28]. It essential to be reminded that discovering a mass on the CBE does not mean other masses do not exist. Therefore, it essential to order a mammogram in conjunction with the Ces. It is also important to note that imaging does not always detect all masses. In fact, 10 breast masses are not seen on mammography (Lin et al, 2009)[29]. Both CBE and mammogram CBE and mammograms are recommended valuation.

Ultrasound *with* mass of breast of 30 should have masses evaluated by ultrasound due to the dense nature of breasts in young females. Ultrasonography can help determine whether a mass is solid or fluid filled (cystic) and has beeisably accurate. In one study, breast ultrasonography demonstrated a sensitivity of 98.4% for

correctly classifying a breast mass as malignant or indeterminate. If found indeterminate, a mammogram should be performed next (Stavros et al, 1995)[30].

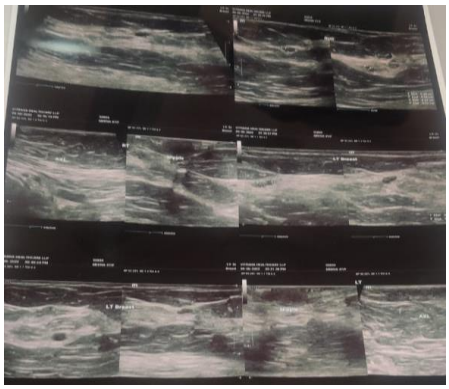

Figure 5-Ultrasound

MRI with gadolinium enhances most invasive breast cancers (Silverstein et al., 2009)[31]. MRIs are probably the best radiologic method to assess the size and location of a breast mass, which would give beneficial information to the surgeon, especially if other modalities fall short (Breast Imaging Reporting and Data System, 2003)[32]. One study found the sensitivity of MRI for malignant breast masses to be 100%. However, the specificity of MRI is relative; around 70%. Since all suspicious breast masses should be biopsied, the addition of an MRI is not critically necessary cost-effective in evaluating breast masses (Olsen et al., 2012; Bleicher et al, 2009)[33,34].

MRI does play a role for patients with silicone breast implants whose mammographic images are fully or partially obscured. MRI gives the highest spatial resolution and contrast between implants and soft tissues of the breast.

Biopsy

Fine Needle Aspiration (FNA) biopsy is commonly used for breast mass biopsy because any trained clinician can perform it in the office setting. The procedure is not difficult to perform and is achieved one in quickly physician's office. Most often, FNA is performed with skilled palpation, but may also be permit formed under ultrasound guidance. Good FNA technique has 98% sensitivity and 97% specificity when performed by experienced operators. The procedure is usually done with a 10-20 ml syringe with a 23-27 gauge needle. The fine needle is systematically advanced in and out of the mass multiple times, collecting tissue specimen. If

aspirated fluid is clear and not liquid, the fluid does not need to be sent for cytology and can be discarded. Bloody or blood-tinged contents should be collected in a Cytolyte solution and sent for a pathologic analysis (Masood, 1994)[35].

Core needle biopsy is similar to the FNA biopsy, but a larger needle is used, usually a 14-18 gauge cutting needle. This technique is more advantageous due to the collection of larger tissue samples. However, core needle biopsies require larger volumes of local anesthesia and have an increased risk of bleeding compared to FNA biopsies, due to larger needle sizes. Ultrasound imaging is usually used for better accuracy, and therefore, core needle biopsies atypically done by a surgeon or an interventional radiologist.

An excisional biopsy is usually performed when FNA biopsy, core needle biopsy, or imaging provides unsatisfactory results (Svane and Silfverswärd, 1983)[17]. It is the most definitive method for histological analysis of a breast mass. An incisional biopsy can be done when the mass huge and, the patient is concerned about cosmetic effects. However, most patients opt for the excisional biopsy because they feel more comfortable have removing microcysts are not indications for an excision due to possible interference with future mammograms (Bleiweiss, 2013)[36]. However, excision is indicated whenever cysts reoccur, grow large, are complex, or if needle aspirations show malignancies.

The triple test

While the traditional diagnoses approach to palpable breast masses mostly involved direct FNAC of the referred case without much attention to the clinical or mammography diagnosis, the possibility that the diagnostic efficacy could further be enhanced when physical breast examination, mammography and FNAC (the triple test [TT]) are jointly taken into consideration as reported in other studies.

Various studies have found nearly 100% diagnostic accuracy of the TT for palpable breast masses when all three elements (i.e., physical examination, mammogram and FNAC) are concordant. A clinician can proceed directly with definitive therapy without an interventional open biopsy if all the components of TT are malignant. If all the components are benign, the patient can then be safely observed (Rubin et al, 1997)[37] September, 1996, National Cancer Institute sponsored conference was defining a uniform approach to breast fine needle aspiration (FNA) biopsy, and to address of the controversies related to breast FNA, including the use of core biopsies. The conference recommendations acknowledged the value of the "TT," that is, the physical examination, imaging findings, and cytological examination in the reliable diagnosis of breast cancer. Consequently, it was suggested that a recommendation be included in the cytopathology reports of breast FNAs to support the clinical application of the "TT" (Morris et al, 2001)[38].

Comparative

Wai et al (2013)[39] modified the original TTS to include ultrasound (US) and core biopsy to determine their role in evaluating palpable breast masses. A retrospective chart review of 320 female patients was performed. They developed a modified triple test score (mTTS) that included physical examination, mammogram and USG, FNAC and biopsy. For the examination and imaging score, 1-3 points were given for low, moderate, or high suspicion. Biopsy scores were characterised, atypical, or malignant. The final was determined by open biopsy or follow-up. Physical examination was 92% accurate (95% confidence interval [CI] 0.89-0.96, $p < 0.0001$) at predicting whether a mass was benign or malignant. Imaging was 88% accurate (95% CI 0.84-0.92, $p < ,0.0001$) and needle biopsy was 95% accurate (95% CI 0.92-0.98, $p < 0.0001$). The modified triple test was 99% accurate (95% CI 0.98-1.00, $p < 0.0001$). Each 1-point increment in the mTTS was associated with an increased risk of cancer, with an odds ratio of 9.73 (CI 5.16-18.4, $p < 0.0001$). For 150 patients, we compared the original TTS with the mTTS. US and core biopsy changed the scores of 24 patients; only three changed clinical management. They conclude no further assessment was necessary for patients with a palpable breast

mass and a mTTS score of 3-4ecessary. Those with a mTTS of 8-9 could proceed to definitive therapy. Patients want a mTTS of 5-7 required further review. US Theandr core biopsy added little to the accuracy or predictive value of the original TTS.

Vaithianathan et al. (2013)[40] evaluated the accuracy of a modified triple test (MTT) in the management of palpable breast lumps. A prospective cross-sectional study was conducted at Mahatma Gandhi Medical College and Research Institute All the components of MTT assessed eighty patients with palpable breast lumps MTT. The results of individual components as, overall MTT were compared with the final histopathological examination. Physical examination showed 96.67% sensitivity, 84% specificity and 78.4% positive predictive value for diagnosing malignant breast lumps. Ultrasonography showed 93.10% sensitivity, 95.9% specificity and 93.1% positive predictive value. Fine needle aspiration cytology (FNAC) showed 96.6% sensitivity, 100% specificity and 100% positive predictive value and the ,modified triple test showed 100% sensitivity, 82% specificity and an accuracy rate of 88.7%. The study concluded that the triple test was 100% accurate in the diagnosing breast lesions when all three elements were concordant (benign or malignant). Among the three components, FNAC had the highest specificity. MTT was reliable in guiding the clinician in the efficient efficiently managing breast lumps. MTT was beneficial in reducing the number of unnecessary open biopsies to confirm the diagnosis. The output of MTT was easily reproducible, making it a valid and reliable diagnostic test in the management of palpable breast lumps.

Surati et al. (2013)[41] evaluated the accuracy of Triple assessment (physical examination, mammography and fine needle aspiration cytology) as a clinical tool for diagnosing a palpable breast lump. The prospective study was carried out in the department of surgery during period from 1st march 2011 to 28th February 2012 in indoor and outdoor patients. Each patient was studied with relevant clinical history, examination, mammography and histological findings and management. The study comprised of total of patients of disease treated with various modalities. In the study of to0 case of, inflammatory conditions were present in 15%, fibrocystic lesion 35%, in fibroadenoma 20%, gynaecomastia and carcinoma 10%. This comparative study reported data by clinical analyses, mammography and histological findings in 100 women 18 to malignant carcinoma found in 10% of was cases while benign breast disease and other condition were of cases. The study concluded that Fibrocystic disease was the commonest lesion with, 30 years as the average age of presentation. Malignancy was detected above 47 years of age. Ninety patients with breast lump interpreted by Triple Assessment as benign correlated with the histopathological findings whereas of 1alignant lumps. This given Triple Assessment an overall accuracy of 100%.

Khoda et al. (2015)[42] studied the accuracy of the modified triple test in diagnosing palpable breast lumps. The study was a cross-sectional study involving 50 female patients with palpable breast lumps attending the Surgical Out Patient of the Regional Institute of Medical Sciences, Imphal between October 2011 and September 2013, who underwent clinical breast examination (CBE), ultrasonography (USG), and fine-needle aspiration cytology (FNAC). All the cases irrespective of results underwent either excisional and or incisional biopsy for confirmation. The final histopathological report was considered the reference standard. A total of 50 patients were included. The age range was 18-56 years. The sensitivity, specificity, positive predictive value, negative predictive value, and accuracy of CBE were 66.6%, 100%, 100%, 90%, and 91.6% respectively; those of USG 91.6%, 100%, 100%, 97.3%, and 97.9% respectively; and those of FNAC 91.6%, 100%, 100%, 97.4%, and 98% respectively. Out of 50 patients, the three tests concurred in 42 (35 benign and 7 malignant) cases. When all three tests concurred, there were no false positive or false negative cases, and sensitivity, specificity, positive predictive value, negative predictive value, and accuracy were all 100%. The authors concluded that the triple test was valid and reliable, with a high degree of accuracy for the diagnosing lumps. Of all the FNAC was the most accurate of the three components of the triple test with a concordant benign triple test report could be safely followed up without the need for biopsy

Rajachiadambaram and Sowmya (2016)[43] assessed the combined and individual reliability of the Modified Triple Test in making a pre-procedural diagnosis of palpable breast lumps. A prospective cross sectional study of 100 female patients with palpable breast lumps attending the outpatient department was done in stwasy period is from April 2013 to September 2015. Out of 100 female patients, 68 patients with 73 breast lumps were inducted into the study. The MTT obviated excision biopsy in 16 pa,, which2%) and this is the potential advantage of this test. Thus the final study group (n=57) underwent the MTT followed by excision biopsy, the results of which were available for comparison. The average age of women in this study was 41.84±shifted mean shifting to 47 years in patients with malignancy, the youngest patient, was 30 years and the oldest was 65 years. This conforms with the suitable age for subjecting patients to screening procedure followed worldwide (i.e.) above 40 years; 9 women were nulliparous of which only 3 had malignant lesions. The rest (n-48) were nulliparous. The results do not point to any positive association between parity and malignancy ($P>0.05$). The study concluded that modified triple assessment was handful diagnostic tool to evaluate patients with breast lumps and to detect patients with breast cancers with placing core needle biopsy instead FNAC and Ultrasonogram for Mammogram more available.

Lingaraju et al. (2016)[44] studied the pattern of age, duration, and pathology, the mode of onset and clinical manifestations and identified - malignant disorders of palpable breast lumps using triple assessment. The study

was an observational cross-sectional study conducted Mandya Institute of Medical Sciences from March 2015 to March 2016. All female patients below 35 years presented to the surgical outpatient department (OPD) with palpable breast lumps are assessed by triple assessment. Total of 80 patients was included in the study, among which mean age of presentation is 26.62 with a standard deviation of 6.09, 42 had lumps in right breast (52%), 36 patients in left breast (45%), 14 out of 80 patients had positive axilla with palpable lymph nodes. 6 out of 80 patient significant family history of breast carcinoma. The triple assessment was favor of benign diagnosis in 41 (51.25%) patients le as the malignant diagnosis was made in 14 (17.5%) patients. The study concluded that triple assessment was a very useful diagnostic to for evaluating patients with breast lumps and detecting patients with breast cancers with an overall accuracy of 99.3%. When the lumps were palpable clinically and of size more than 2 cm fi ne-needle aspiration cytology itself had a sensitivity of 100%. The triple assessment did not hospitalisation, could be performed on basis, without any complications and it was the gold standard diagnostic for the palpable breast lumps in early detection of malignancy avoiding biopsies.

Mannarakkal et al (2017)[45] studied the Effectiveness of Triple Test in Early Detection of Carcinoma Breast. Female patients attending the outpatient department of general surgery the complaint of palpable lump/lumps in the were undertaken from November014–November 2016. All the e components of triple tests were done in these patients. 100 female One hundred were studied, and of that 56 patients were diagnosed with malignancy and 44 with benign lesions. When compared with the, final histopathology report, triple assessment tests had a sensitivity and specificity of 100% and 97.7%, respectively. The study concluded that detecting and managing breast mass required an optimal environment for interpretation, relevant use of clinical information, technically excellent imaging procedures, proper interpretation of findings, and patient recommendations. The results showed that the diagnostic accuracy of combined physical examination, sonomammogram, and fine needle aspiration-core needle biopsy was comparable to that of the final histopathology report which proved that early detection of breast malignancy could be achieved.

Patil et al.(2018)[46] assessed the accuracy of modified triple test score ,i.e. clinical examination, ultrasonography and fine needle aspiration cytology in breast lump by comparing with histopathology. 50 women with palpable breast lump attending surgical outpatient and inpatients who underwent surgery for the same were included in the study on the basis of predefined inclusion and exclusion criteria. Clinical examination of all the patients I with respect to size of breast lump size, consistency, tenderness, mobility and fixity to underlying structures was assessed in all the cases. Ultrasonography of both breast and axillae and Fine needle aspiration cytology of breast lump was done in all the cases. The accuracy of modified triple test was assessed by comparing the histopathology of the breast lump. Out of 50 studied cases 15 turned out to be

malignant on histopathology, 14 patients had intra ductal carcinoma (particular type) and 1 had mucinous carcinoma. 35 were benign lesions on histopathology, 26 had fibro adenoma, 5 had fibrocystic disease and 2 had mammary hamartoma. Out of 50 patients, 34 had MTTS score of 3 or 4 points all of which were proved benign on reports pathology 15 patients had MTTS, score of 6 and above and all were malignant on HPR, out of which 14 were intraductal carcinoma. Only 1 patient, which score of 5 and it was proven. They to be benign. The concluded that modified triple test score assessment was highly sensitive and specific in diagnose lumps as well as differentiating benign from malignant breast pathologies.

Raja et al. (2018)[47] determined the diagnostic accuracy of triple assessment in the diagnosis of breast cancer in women more than 40 years, keeping histopathology as the gold standard. Women with a breast lump or change in breast with an age range of 40-70 years were included. Detailed physical and breast examination and mammography followed by FNAC were performed. Mammography of the breast consists of two standard views, i.e., lateral oblique (MLO) and a craniocaudal view (CC). Sensitivity, specificity, positive predictive value and negative predictive value and accuracy of triple assessment were calculated 49.5% patients were labelled as malignant. Mammogram showed 69.7% as malignant. On FNAC 64.8% were labelled as malignant. Results of triple assessment showed 72.4% as malignant. Histopathology results showed 73.3% as malignant, thus showing that in overall study population 71.5% were true positives, 25.7% were true negatives, 1% were false positives and 2.0% were false negatives. The study findings revealed that sensitivity, specificity, PPV, NPV and accuracy of triple assessment in diagnosing breast cancer is 97.4%, 96.4%, 98.7%, 93.1% and 97.2% respectively. The concluded that triple assessment allowed detection of malignancy in palpable breast lumps with acceptable sensitivity, specificity, positive predictive value, negative predictive value and accuracy.

Shinde et al (2018)[48] studied the accuracy of Clinical Examination, Ultrasonography, Cytology Parameters in the diagnosis of palpable breast lump. 81 female patients who presented with palpable breast lump who had undergone clinical breast examination, FNAC and HR-USG of breast lump and subsequent excision biopsy were included in the study. Excision biopsy was considered as a mandatory part of the workup for patients with palpable breast lump. Initially patient was subjected for clinical breast examination which included detailed history, Inspection, Palpation of breast and systemic examination. Then patient was subjected to Ultrasonography. Interpretation of sonography was performed prospectively as benign, suspicious or malignant. FNAC was done after imaging studies, the result of the palpation-guided FNAC

was analysed by pathologist and reported as benign, suspicious or malignant. Following this workup, all patients underwent an excisional biopsy. The final histopathological diagnosis was compared with the result obtained by Clinical Breast Examination, Ultrasonography, and Fine Needle Aspiration Cytology examination. Clinical breast examination had sensitivity of 87.09%; specificity of 90.20%; positive predictive value of 84.37%; negative predictive value of 92% and accuracy of 89.02%. Ultrasonography had sensitivity of 80.65%; specificity of 94.23%; positive predictive value of 89.3%; negative predictive value of 89.1% and accuracy of 89.16%. Fine needle aspiration cytology had sensitivity of 86.21%; specificity of 100%; positive predictive value of 100%; negative predictive value of 92.9% and accuracy of 95.06%. The triad of Clinical breast examination, Ultrasonography and fine needle aspiration cytology (modified triple test) had sensitivity of 95.65%; specificity of 100%; positive predictive value of 100%; negative predictive value of 97.87% and accuracy of 98.55%. The study concluded that the combined triad of clinical breast examination, Ultrasonography and fine-needle aspiration cytology was highly accurate in the diagnosis of breast lumps.

Jain and Jain (2019)[49] established the diagnostic accuracy of triple test in assessing breast pathologies in women above 20 years of age taking their histopathological report as standard. They included women presenting with a complaint of breast lump or change in breast texture in an age group of above 20 years. Systematic clinical examination was done followed by mammography and finally fine-needle aspiration cytology (FNAC) for tissue sampling. Lesions were considered triple test positive, if lesions were FNAC positive and any one of the remaining two modalities also gave a positive(malignant) interpretation, supporting FNAC, but each of three components must be negative for labeling triple test as negative. They obtained 100% sensitivity using triple test in all age groups when each element was interpreted as malignant and 100% specificity ($P < 0.001$) when each element was interpreted as benign with diagnostic accuracy of almost 100% in concordant cases. It was recommended that in cases, where all three modalities are not in agreement for benign pathology and in FNAC positive cases where other two parameters are not in agreement, and lesion is interpreted as suspicious on triple test, the nature of the lesion must be ascertained by excision biopsy. The study concluded that triple test of breast pathologies was a reliable method and allowed detection of breast pathologies in an effective manner, and undue delay in treatment could be minimized by using this modality in limited resource country.

Amudala et al (2019)[50] studied the sensitivity, specificity, positive predictive value, negative predictive value of each component of modified triple assessment individually. A prospective cross sectional study of 80 female patients attending the outpatient department at the Department of General Surgery, narayana medical

college and hospital, Nellore, from December 2016 to November 2018 with the complaint of a palpable lump/lumps in the breast was undertaken. Of the 80 patients randomly referred for the study, 23 patients not fulfilling the inclusion criteria were excluded. Thus 57 patients with breast lumps were included into the study. Thus the final study group (N=57) underwent the Modified Triple Test (MTT) followed by excision biopsy, the results of which were available for comparison. Out of 57 cases that underwent triple assessment and histopathological assessment were 5 discordant results. These cases were given as malignant lesions by triple assessment and later they proved to be benign lesions on histopathological report. The study concluded that triple assessment was the gold standard diagnostic tool for the palpable breast lumps in early detection of malignancy avoiding biopsies.

Solanki et al (2020)[51] evaluated accuracy of modified triple assessment in the preoperative diagnosis of patients with breast carcinoma. Results showed sensitivity and specificity of all the modalities used in triple assessment when combined together was 100% and 99.3%, respectively. Positive predictive value was 93.3%, negative predictive value was 100%, p-value was highly significant (p< 0001). They concluded that modified triple assessment was a very useful diagnostic tool to evaluate patients with breast lumps and an overall accuracy of 98%.

Alawi et al (2020)[52] determined the frequency of different breast lesions in symptomatic women under 25 years and the value of radiological imaging in the diagnosis. The study was a retrospective study; a total number of 250 cases with breast lumps under 25 years of age were registered in the PACKS of our institution in the period from January 01, 2017 to December 31, 2018. Two hundred three cases coped with our inclusion criteria that include available histopathological results either by biopsy or after surgery based on their referring physicians decision. Our exclusion criteria were those cases (47) with definite BIRADS 2 lesions with no available pathology reports. Ultrasonography was done to all patients (203 cases) and MRI was performed to 26 cases. All cases were histologically verified; their findings were reviewed and compared to radiological findings. A total of 203 symptomatic breast lesions were received at the radiological department in women under 25 years; there were 115 (56.7%) benign, 85 (41.9%) cystic, and 3 (1.5%) malignant lumps. The commonest benign lesion was fibroadenoma (104 cases, 51.2%) and all the malignant lesions were invasive ductal carcinoma (IDC) (3 cases, 1.47%). The p value is > 0.05, so there were no differences between examination using the ultrasonography and the MRI imaging compared to histopathological results. The study concluded that most breast lesions in young women were benign. Ultrasonography was an essential first imaging modality in the diagnosis of women under 25 years with breast lesions.

Karim et al (2020)[53] examined the combined and individual predictive values of physical examination (P), mammography (M), ultrasound (U), FNAC (C), with core biopsy (B) - triple assessment in the diagnosis of breast cancer. To obtain the results of physical examination (P), mammography (M), ultrasound (U), FNAC (C), and core biopsy (B), they examined the records of 124 breast cancer patients seen between April 1, 2009, and March 30, 2010. To assess the diagnostic potential of the combination of the modalities (P, U, and M), they considered all cases with a score of 4 (probably malignant) and 5 (malignant) as positive for malignancy. All cases with a score of 3 (equivocal), 2 (benign), and 1 (normal) were considered negative for malignancy. For FNAC, a score of 1 (insufficient sample), 2 (benign), and 3 (atypia/probably benign) were considered. All the patients were diagnosed with breast cancer on excision biopsy. Among 124 patients, 12 were excluded, as they were unfit for intervention. The accuracy of physical examination (P) as confirmed by core biopsy (B) is dependent on the experience of the surgeon. It has limitations in younger women and smaller lesions. In the study, P has a positive predictive value (PPV) of 58.9% when compared with surgical biopsy, which is comparable with other studies. The results showed PPV 66.1% and after an ultrasound scan, the overall radiological grading (M & U) gives a PPV of 81.3%, reflecting the important role of ultrasound scans. Our results showed the sensitivity of FNAC to be 73.2%. Core biopsy was diagnostic in 107 (95.5%) patients, making it a reliable tool. The results confirmed that a combination of the modalities (P, M, U, R, FNAC) was more accurate than any modality alone. The study concluded that when all the three modalities were positive for a diagnosis of malignant breast disease, surgical biopsy confirmed the breast cancer diagnosis with a PPV of 100% and a sensitivity of 95.5%.

Kumar et al (2020)[54] studied the role of modified triple assessment in diagnosis of breast lump and sensitivity and specificity of modified triple assessment with regards to histopathology. A descriptive cross sectional study was conducted in the Department of General Surgery, Indira Gandhi Institute of Medical Sciences, Patna, Bihar, India from December 2016 to July 2017. A total of 300 patients with a breast lump were included in this study. A detailed history, focused clinical examination, radiological imaging and FNAC were used as diagnostic tools for screening of the patients. The result of individual components as overall M.T.T was compared with the final histopathological examination. Result of physical examination showed sensitivity 92.67% and specificity 96.67% for diagnosing malignant breast lesion. The ultra-sonography revealed 91.33% of sensitivity, 98.66% of specificity. FNAC revealed that 96.25% sensitivity while specificity was 99.57%. The study concluded that triple assessment was an easily available, cost effective, least invasive, rapid and patient compliant diagnostic tool for diagnosis of breast lump.

Devi and Sailaja (2020)[55] studied the sensitivity, specificity, positive predictive value, negative predictive value for the modified triple test (MTT) used in the diagnosis of palpable breast lumps. The study was a cross-sectional study, conducted in the department of General surgery, Rangaraya Medical College. Female aged >30 years, complaining about breast lump were included in the study. Breast imaging techniques and cytopathological tests were used for the diagnosis of MTT. A total of 65 participants were included, the mean age was 41.84+9.1 years and 62% were benign. Age-wise, more (37%) benign cases in 31–40 years group and more (14%) malignant cases in 51 – 60 years group. The left side presentation was predominant (63%). Totally 12.3% (8) women were nulliparous, out of which 2 had malignant lesions and the rest (57; 81.7%) were multiparous. Statistically, there was no significant difference (P >0.05). The study concluded that among the three components of the triple assessment, the cytopathological diagnosis was considered to be the most reliable component especially in doubtful cases.

Vishnuteja et al (2021)[56] assessed the added and singular dependability of modified triple testing in making a pre-procedural diagnosis of a breast lump. A random sample of 150 patients attending the surgery outpatient department was taken. Of the 150 patients presenting with breast lumps most of the lumps were painless 81.3% (n=122),10% (n=16) of the lumps were associated with pain and 8% (n=12) were associated with nipple discharge. A fine collaboration between experienced radiologists, cytologist and the Clinician was required. Ultrasound when replacing mammography served as effective an imaging modality in palpable breast lumps and was more comprehensive. Ultrasound breast aided biopsy techniques by guidance to the representative area than increasing yield. CNB was a suitable alternative when FNA was inconclusive and might offer additional information. Thus, the use of Modified Triple Test (MTT) to complement findings in differential diagnosis of a lesion in a symptomatic women seeking medical care deserved acceptance and further evolution. This might lead to less delay in treatment when malignancy was suspected and to avoidance of surgical exploration when a benign nature of lesion was suspected.

Brahmachari et al (2021)[57] tested the sensitivity, specificity, negative predictive value (NPV), and positive predictive value of a novel quadruple score for the initial screening of breast cancer. The study was conducted on 320 patients having breast lump to the Breast Cancer Outpatient Department of AIIMS, Bhopal. The physical examination findings, breast sonography findings, mammography, and FNAC findings were recorded in the set pro forma, these were later analyzed, and a cumulative scoring was done categorizing patients in the benign, dubious, and malignant category according to the QTS score. These findings were then validated and compared by histopathology. Statistical results showed a positive covariance σ suggesting the positive relation between them; also, the correlation coefficient was 0.9996 suggesting a strong linear correlation. On

comparing the accuracy of all four variables as physical examination, USG, mammography and FNAC individually and Quadruple score (QTS), the accuracy of QTS was highest i.e 99.44%. The study concluded that QTS was accurate and reliable diagnostic approach for evaluation of breast lumps. By using the quadruple scoring system, management of palpable breast lump will become more streamlined, providing a platform for managing discordant results, which could be followed universally.

MATERIAL AND METHODS

MATERIAL AND METHODS

Patients attending Department of General Surgery OPD with a palpable breast lump was subjected to the study.

Place of study: Department of General Surgery, Santosh Medical college, Ghaziabad.

Inclusion criteria:

• Female patients with palpable breast lump

• Age group between 13 years-65years

Exclusion criteria:

• Male patients

• Patient with no lump

• Patient of mastalgia

• Patient with tuberculosis of breast

As per inclusion and exclusion criteria study people were selected.

Duration of Study: July 2021 to June 2022 (one year).

SAMPLE SIZE – 68

$n=Z1- /2P(1-P)/d^2$

P = Prevalence of breast lump (13%) l = Relative precision (20% of p) Thereby, n = 68

STUDY DESIGN - Prospective observational study

SAMPLING TECHNIQUE- Convenient sampling based on age group and aims and objective.

METHODOLOGY

Initially, detailed history is taken, after getting the informed consent complete clinical examination will be performed.

As FNAC can cause tissue damage which can lead to architectural distortion. So, USG imaging and Mammography of both breast and axilla will be done before any invasive procedure.

Mammography above 40yrs of age.

Finally, the tissue diagnosis with FNAC.

Statistical analysis

The descriptive statistics were presented in terms of frequency, percentage and mean±SD.

RESULT AND OBSERVATION

RESULT AND OBSERVATION

Table-1: Distribution of patients according to age

Age in years	No. (n=68)	%
<30	27	39.7
30-40	21	30.9
41-50	11	16.2
>50	9	13.2
Mean±SD	36.15±13.39	

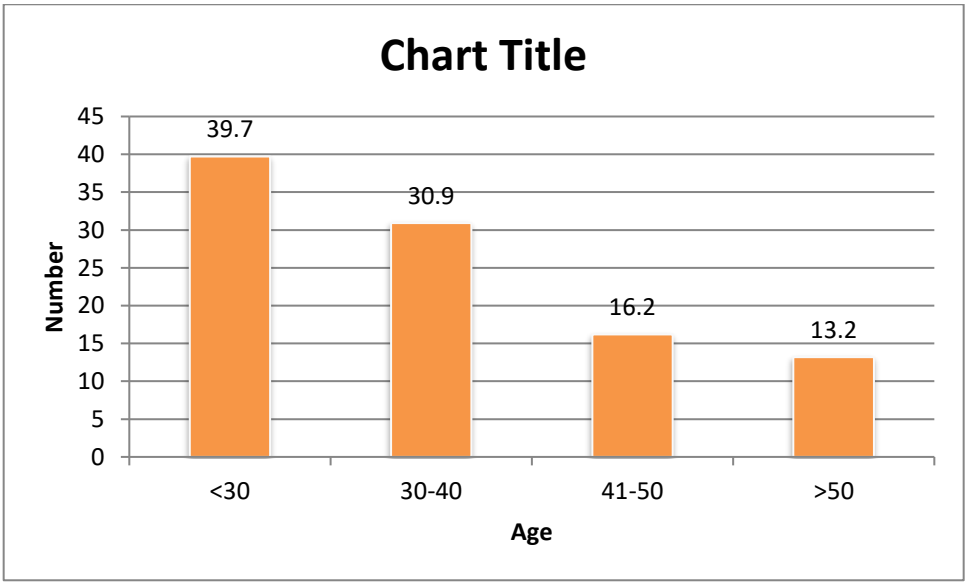

Fig. 1: Distribution of patients according to age

Table-2: Distribution of patients according to LUMP size

LUMP size	No. (n=68)	%
<3 cms^2	19	27.9
3-6 cms^2	36	52.9
>6 cms^2	13	19.1
Mean±SD	6.04±6.64	

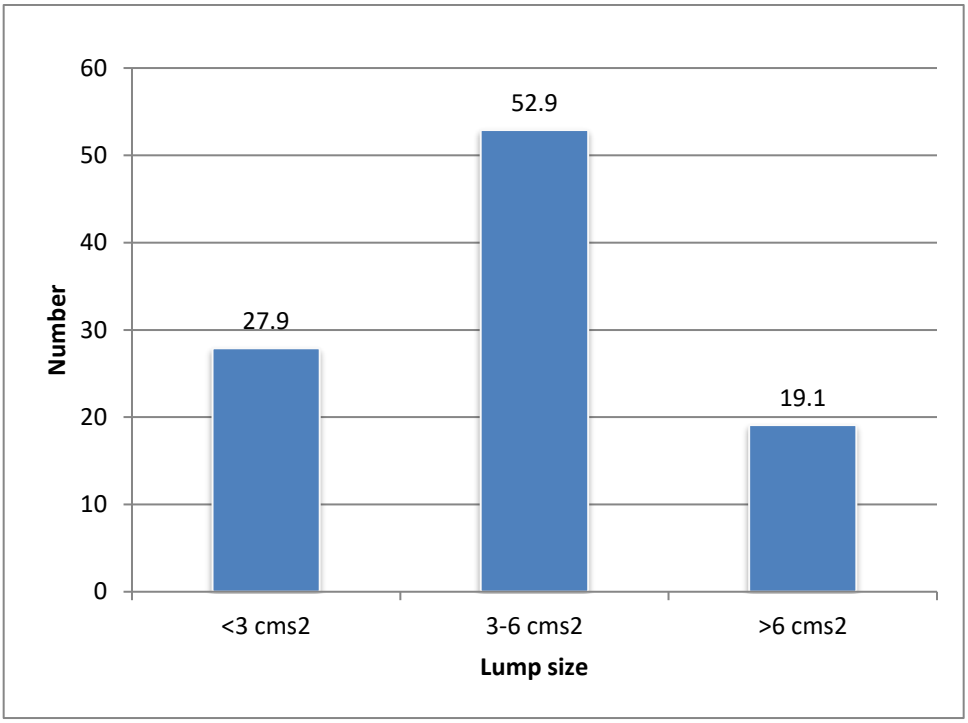

Fig. 2: Distribution of patients according to LUMP size

Table-3: Distribution of patients according to LUMP duration

LUMP duration	No. (n=68)	%
<3 months	36	52.9
3-6 months	25	36.8
>6 months	7	10.3
Mean±SD	3.48±4.21	

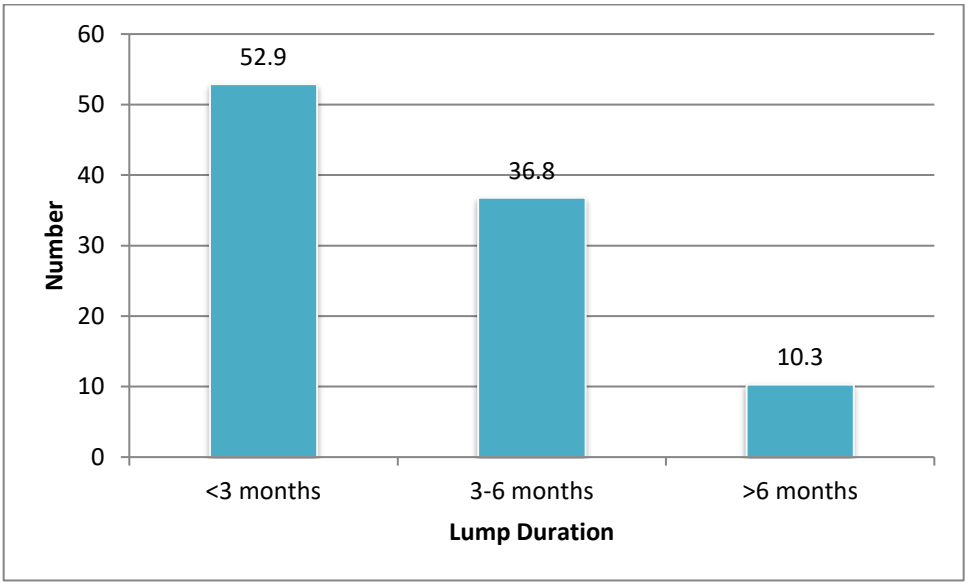

Fig. 3: Distribution of patients according to LUMP duration

Table-4: Distribution of patients according to symptoms associated with lump

Symptoms associated with lump	No. (n=68)	%
Recurrence	14	20.6
Tenderness	45	66.2
Signs of inflammation	2	2.9
Side		
Left	30	44.1
Right	35	51.5
Bilateral	3	4.4
Location		
Lower inner	17	25.0
Lower outer	8	11.8
Nipple areola complex	1	1.5
Upper inner	22	32.4
Upper outer quadrant	20	29.4
Nipple discharge	3	4.4
Cycle		
Irregular	15	22.1
Regular	53	77.9
Shape		
Oval	20	29.4
Round	48	70.6
Margin		
Ill defined	18	26.5
Well defined	50	73.5

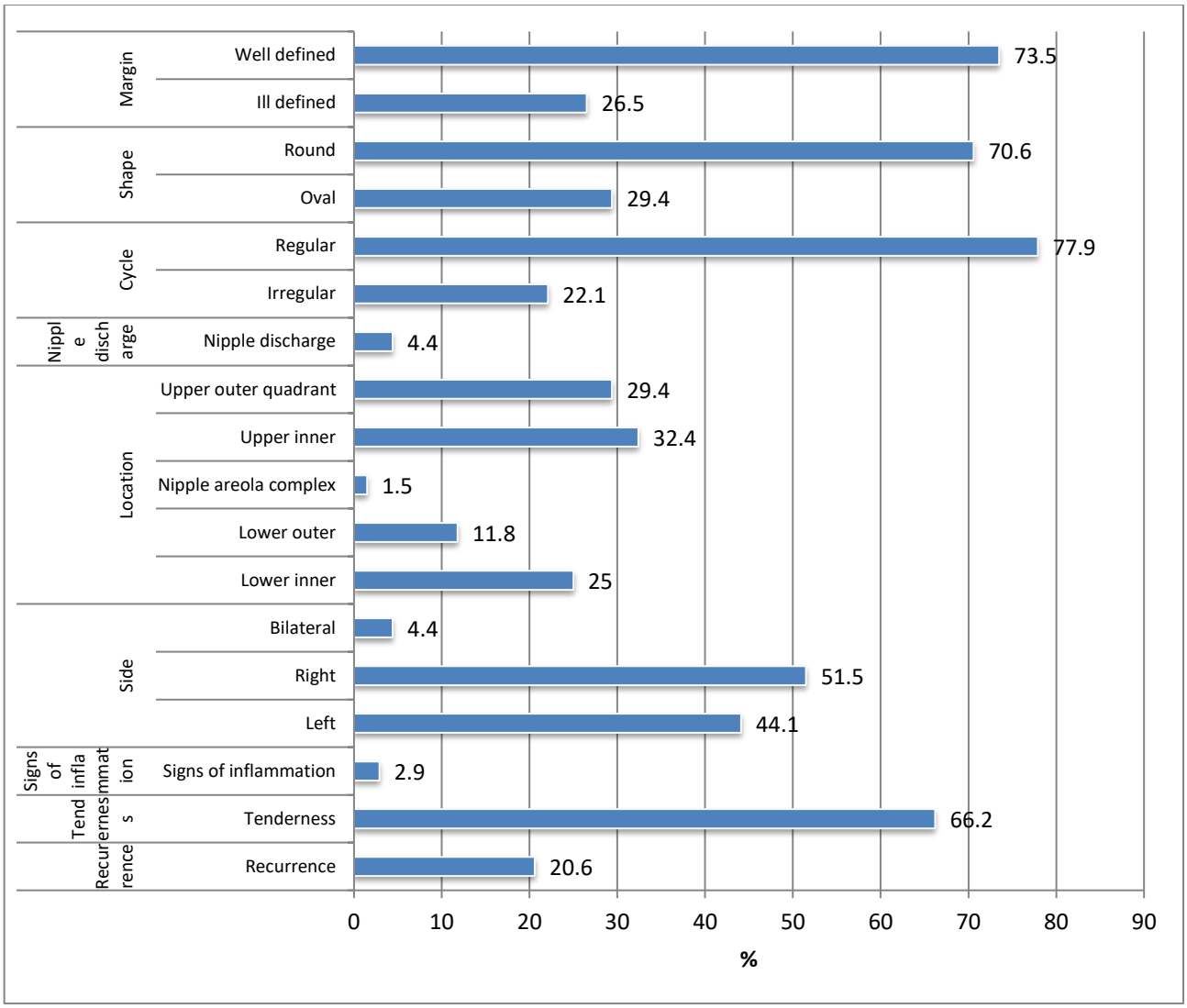

Fig. 4: Distribution of patients according to symptoms associated with lump

Table-5: Distribution of patients according to Mammogram

	No. (n=21)	%
Density		
Asymmetric	1	4.8
Hetero dense	2	9.5
High	2	9.5
Normal	14	66.7
Ulcerative	2	9.5
Calcification		
Absent	17	81.0
Micro	4	19.0
Margins		
ill defined	1	4.8
Irregular	3	14.3
No lump	1	4.8
Regular	2	9.5
Speculated	1	4.8
well defined	13	61.9
Result		
Benign	15	71.4
Malignant	2	9.5
Slightly malignant	4	19.0

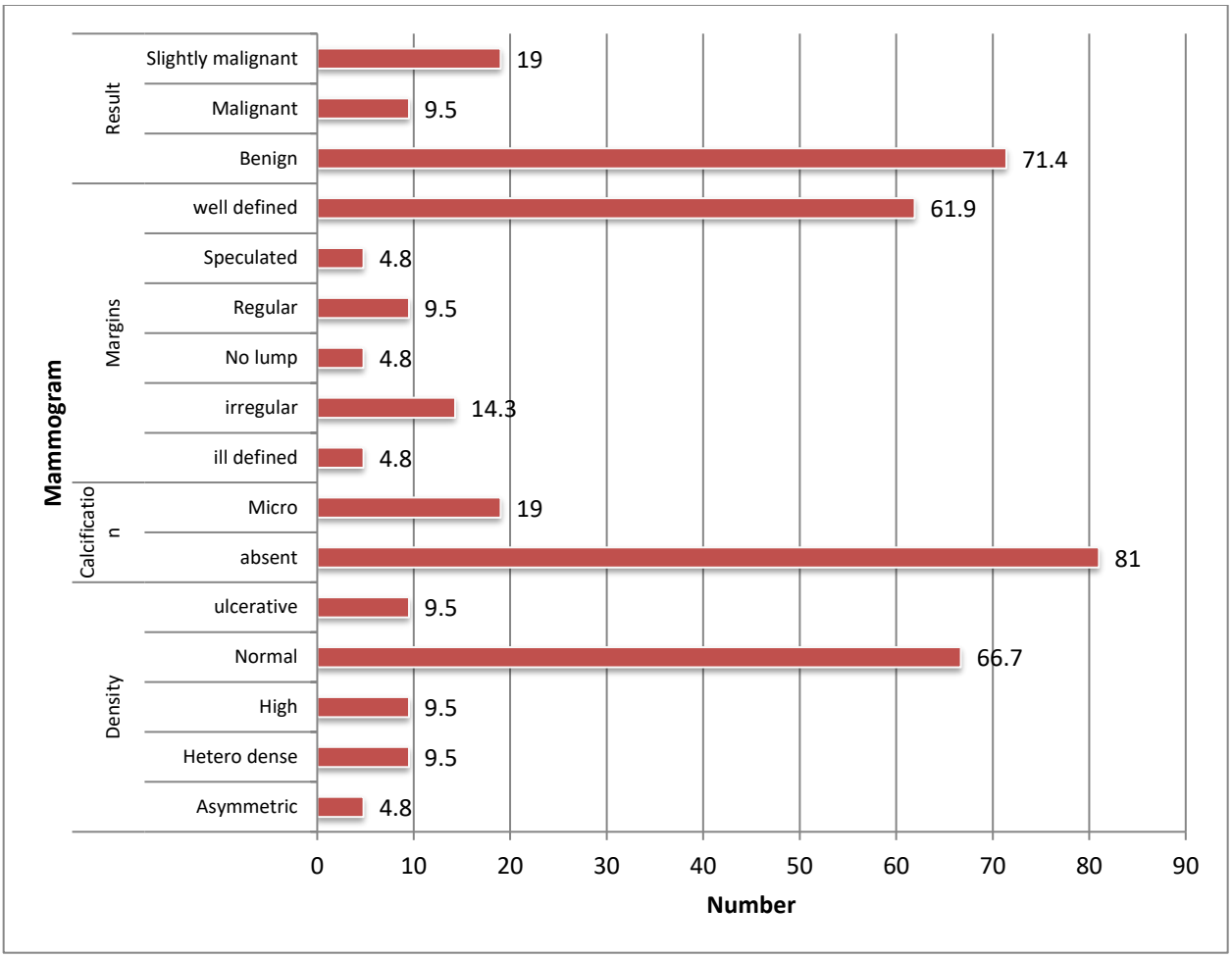

Fig. 5: Distribution of patients according to Mammogram

Table-6: Distribution of patients according to Distortion

Distortion	No. (n=68)	%
Present	9	13.2
Absent	59	86.8

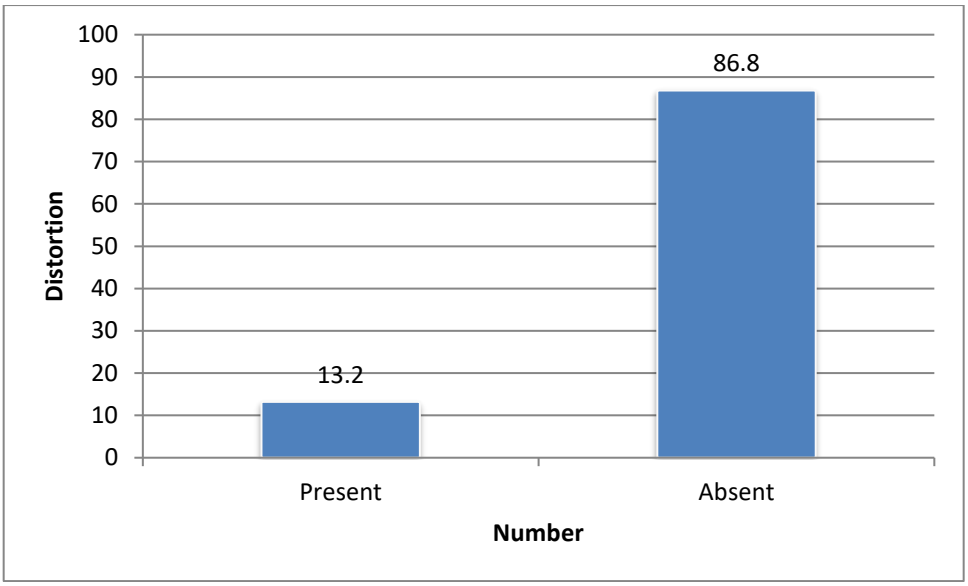

Fig. 6: Distribution of patients according to Distortion

Table-7: Distribution of patients according to Sonography

Sonography	No. (n=68)	%
Circumscribed		
Ill differentiated	12	17.6
Speculated	1	1.5
Well differentiated	55	80.9
Vascularity		
Increased	4	5.9
Normal	64	94.1
Echogenicity		
Dense	1	1.5
Hetero dense	1	1.5
Hetero hypoechoic	2	2.9
Hyper echoic	2	2.9
Hypoechoic	51	75.0
ISO	11	16.2
Result		
Benign	60	88.2
Malignant	6	8.8
Slightly malignant	2	2.9

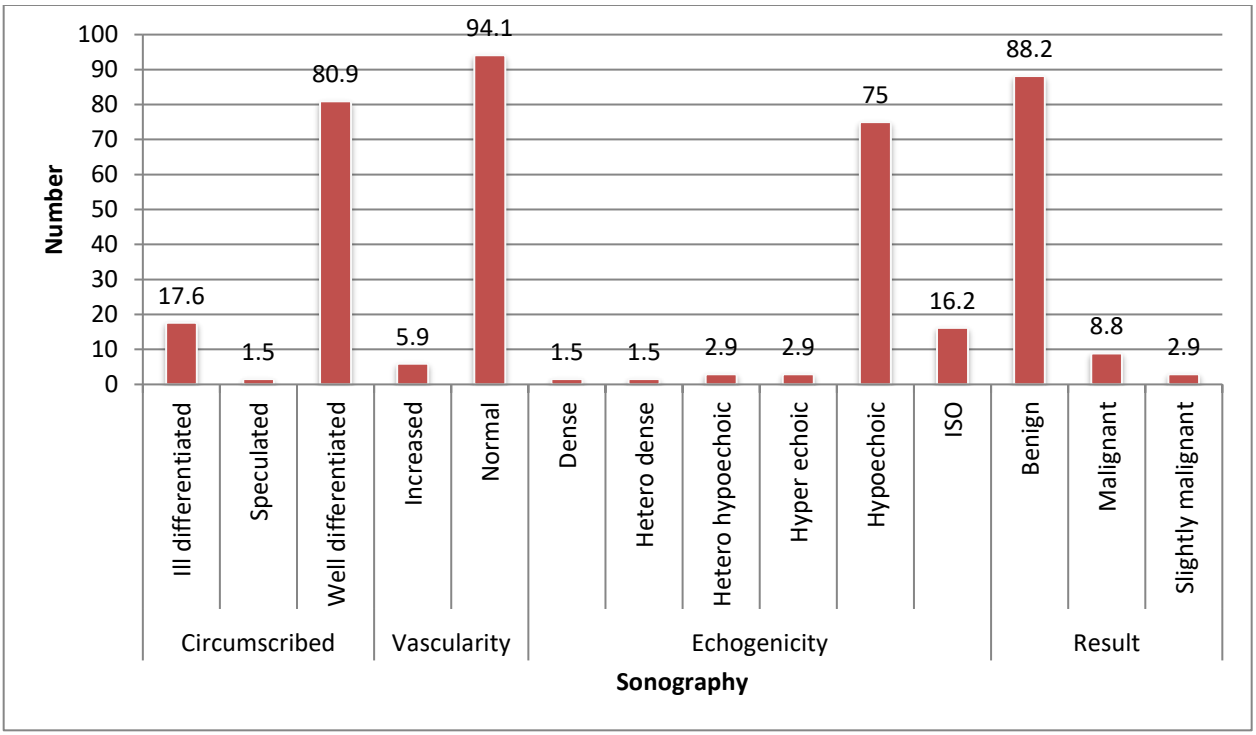

Fig. 7: Distribution of patients according to Sonography

Table-8: Distribution of patients according to BIRADS SCORE

BIRADS SCORE	No. (n=68)	%
B-1	9	13.2
B-2	46	67.6
B-3	2	2.9
B-4	6	8.8
B-5	3	4.4
B-6	1	1.5
GALACT	1	1.5

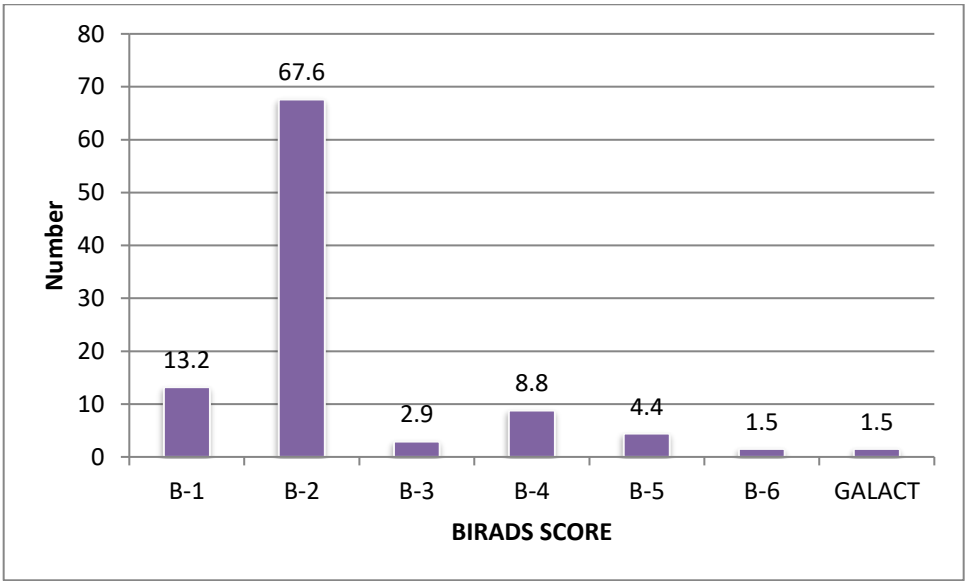

Fig. 8: Distribution of patients according to BIRADS SCORE

Table-9: Distribution of patients according to FNAC

FNAC	No. (n=68)	%
Adenosis with atypia	1	1.5
Benign breast disease	1	1.5
Fibroadenoma	41	60.3
Fibroadenosis	14	20.6
GALACT	1	1.5
Inconclusive	1	1.5
Invasive carcinoma	2	2.9
Invasive ductal	1	1.5
Invasive ductal carcinoma	6	8.8

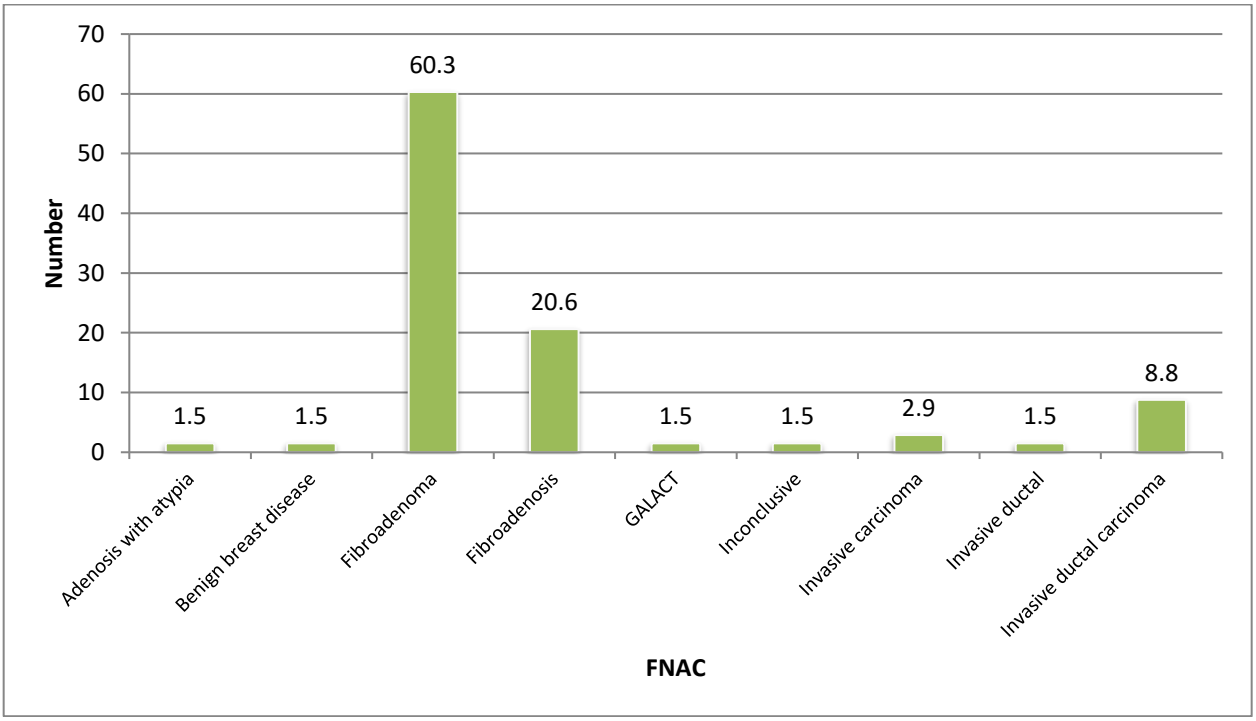

Fig. 9: Distribution of patients according to FNAC

Table-10: Distribution of patients according to management

Management	No. (n=68)	%
Conservative	57	83.8
Excision lump in GA	3	4.4
MRM in GA	8	11.8

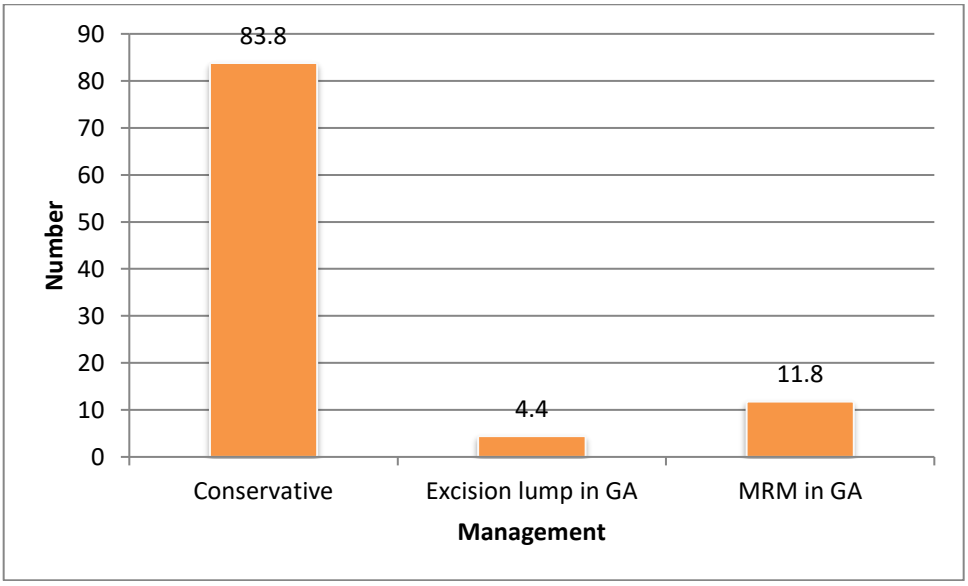

Fig. 10: Distribution of patients according to management

Table-11: Distribution of patients according to management

Management	No. (n=68)	%
Less than one month	30	44.1
1 Month	24	35.3
2 Months	13	19.1
4 months	1	1.5

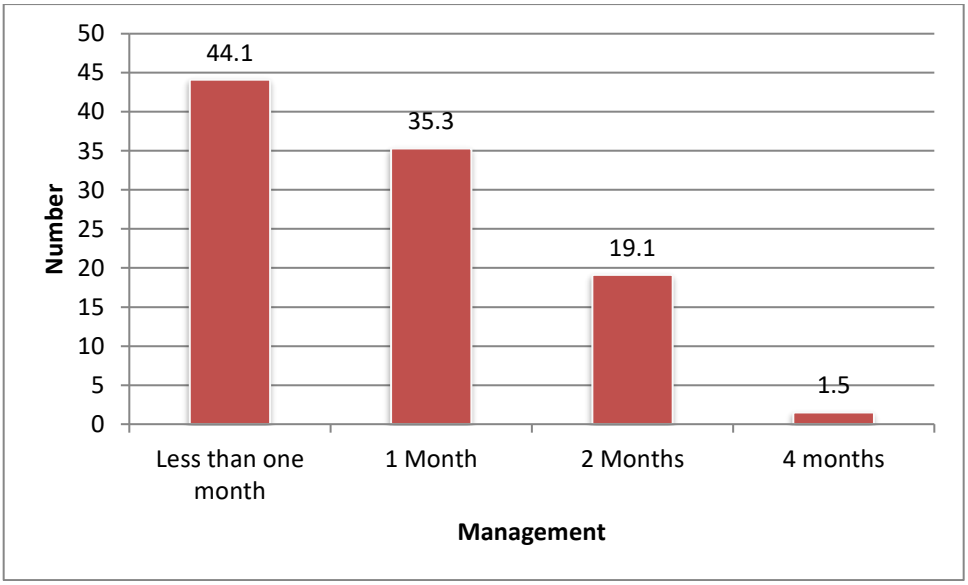

Fig. 11: Distribution of patients according to management

Table-12: Distribution of patients according to Improvement

Improvement	No. (n=68)	%
Yes	61	89.7
No	7	10.3

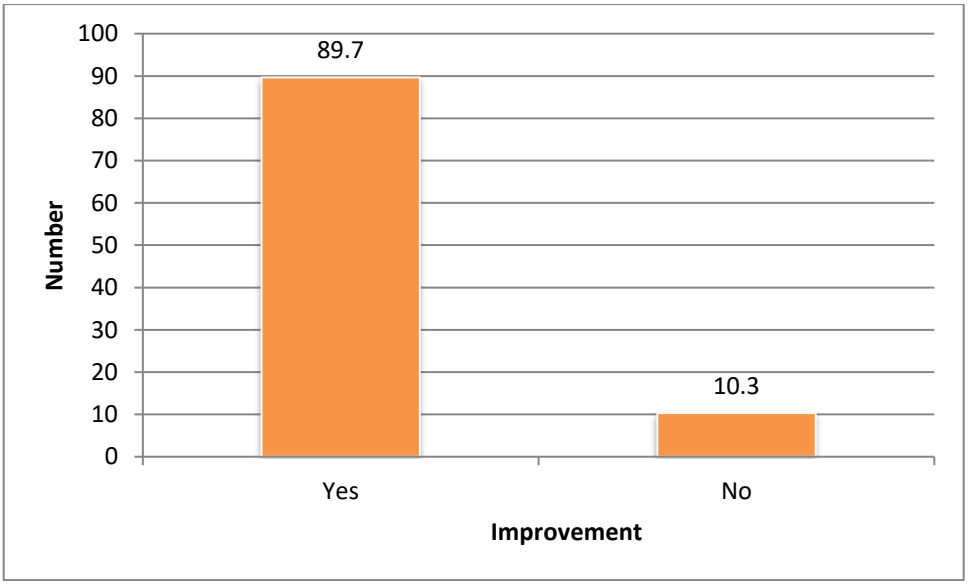

Fig. 12: Distribution of patients according to Improvement

Table-13: Distribution of patients according to Improvement

Screening	No. (n=68)	%
Triple test(TT)		
Positive	6	8.8
Indeterminant	1	1.5
Negative	61	89.7
Modified triple test (MTT)		
Positive	10	14.7
Indeterminant	2	2.9
Negative	56	82.4

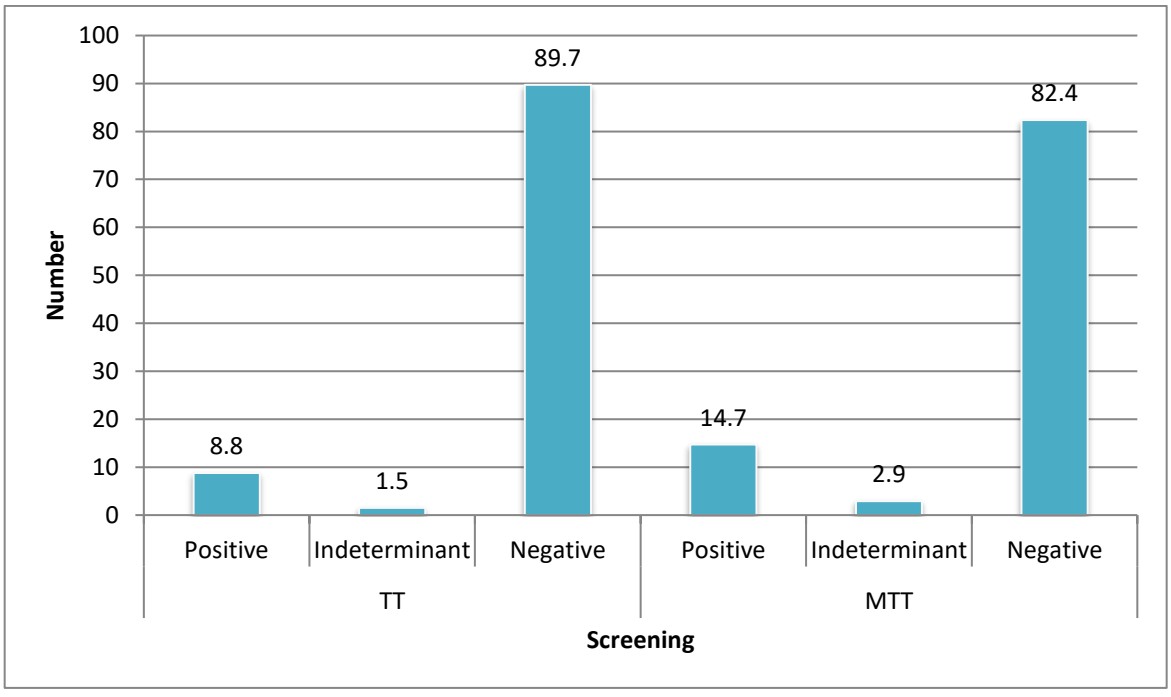

Fig. 13: Distribution of patients according to Improvement

DISCUSSION

DISCUSSION

Patient with breast problems make up a major part of the patient load at a general surgical OPD clinic. Breasts are the most important feature of female anatomy and an integral part of the reproductive system. Majority of breast lumps prove to be benign, but the probability of the diagnosis of cancer is never zero. Breast cancer is the commonest cancer in American women and third most common in Indian women and its incidence has been increasing over the past decade. So careful evaluation, exact diagnosis and definite treatment is mandatory in any breast mass (Morrow et al, 1998)[58].

Despite centuries of theoretical meanderings and scientific research, cancer of breast remains one of the most dreaded of human disease (Beyer and Moonka, 2003)[59].

The breast being a paired organ further increases its exposure to the disease. Open surgical biopsy has been the gold standard a reference standard method of evaluating a suspicious breast lesion (Donegan, 1992)[60].

However, surgical excision or biopsy of mass can be painful, expensive and frequently unnecessary in young age groups, which have very low rates of malignancy (Klein, 2005)[25].

The dilemma still remains that the dogmatic statement “every palpable mass in breast must be excised” should be replaced by recommendation that “every palpable mass in breast must be assessed and clarified” thus avoiding a number of unnecessary scars, stress, workload and expenditure (Schuhmann et al, 1995)[61].

Introduction of FNAC changed the entire outlook to the matter the combination of clinical examination, mammography and tissue diagnosis came to be called upon as the triple test for assessment of breast lumps and has become the gold standard in the work up of the same. There is strong evidence for the value of using the triple assessment to estimate the probability of malignancy and guide the evaluation of palpable breast lump (Vetto et al, 2002)[62].

Each component of the triple test assigns score number 1 when it appears benign, number 2 when it appears suspicious and number 3 when it appears malignant and the sum of the scores is called the triple test score (TTS). When the triple assessment is performed adequately and produces concordant results (all benign or all

malignant) or scores are above 6 (malignant) or under 4 (benign) the diagnostic accuracy approaches 100%. However 40 % of cases are non-concordant and lumps with score 5 require open biopsy (Morris et al, 2001)[38].

When the components of the triplet test all point to benignity, the patient may be confidently followed up without the necessity of biopsy and adoption of these guidelines may safely reduce the number of open breast biopsies by about 50-60% (Grobler et al, 1990)[63].

Due to reduced sensitivity and specificity of lesion detection by mammography in young women under 40 and the non-availability of mammography machine at many tertiary centers and the usefulness of ultrasonography, researchers combined ultrasonography instead of mammography to the scoring system and the modified triple test score (MTTS) was introduced which is an integration of clinical breast examination, Fine needle aspiration cytology and ultrasonography (Deliiski et al, 1998)[64].

Breast ultrasound has now become available at higher resolutions and is proving to be highly useful adjunct to mammography esp. in females <40yrs.Although the role of fine needle aspiration cytology and clinical examination has been unanimous, the role of ultrasonography, instead of mammography, has been emphasized. The wide acceptance of ultrasound as a diagnostic modality has been documented extensively in literature. Incorporation of ultrasound in the triple assessment of palpable breast masses can result in a reduction of total costs for the diagnosis and treatment of breast cancer (Flobbe et al, 2004)[65].

The present study was conducted in department of surgery, Santosh Medical College & Hospital, Ghaziabad, U.P. with the objective to evaluated and compare of breast lump by Modified triple assessment and Triple assessment. A total of 68 patients were included in the study.

In this study, more than one third of patients were <30 years of age (39.7%) followed by 30-40 (30.9%), 41-50 (16.2%) and >50 (13.2%). The mean age of patients was 36.15±13.39. In the study by Devi and Sailaja (2020)[55], a total of 65 participants were included, the mean age was 41.84+9.1 years and 62% were benign. Age-wise, more (37%) benign cases in 31–40 years group and more (14%) malignant cases in 51 – 60 years group. Patil et al (2018)[46] showed that the analysis of age groups of the studied cases showed that the most common age group was 26-35 years (26%) followed by 36-45 years (22%) and 15-25 years (22%).

This study found that Lump size 3-6 cms^2 was among about half of patients (52.9%) followed by <3 cms^2 (27.9%) and >6 cms^2 (19.1%). The mean lump size was 6.04±6.64 cms^2.

In the current study, Lump duration <3 months was among about half of patients (52.9%) followed by 3-6 months (36.8%) and >6 months (10.3%). The mean lump duration was 3.48±4.21 months. In the study by Patil et al (2018)[46], the duration of lump showed that majority of the patients had signs and symptoms since less than 6 months (68%) followed by 7-12 months (22%). 3 (6%) patients had signs and symptoms since more than 2 years.

This study showed that Tenderness and recurrence was in 66.2% and 20.6% patients respectively. Right side lump was in 51.5% patients. Upper inner was the most common location constituting in 32.4% patients. Nipple discharge was only in 4.4% patients. Regular cycle (77.9%) and round shape (70.6%) were among majority of patients. Well defined margin was also among majority of patients (73.5%). In the study by Vishnuteja et al (2021)[56], of the 150 patients presenting with breast lumps, most of the lumps were painless 81.3% (n=122),10% (n=16) of the lumps were associated with pain and 8% (n=12) were associated with nipple discharge. In contrast to this study, Devi and Sailaja (2020)[55] found that the left side presentation was predominant (63%). Patil et al (2018)[46] observed that the distribution of the lesion on the basis of side showed that 26 (52%) patients had lesion on left side whereas 24 (48%) patients had lesion on right side. In the study by Patil et al (2018)[46], the most common site of lesion was found to be upper outer quadrant which was seen in 24 (48%) patients followed by upper inner quadrant (18%).

In the present study, Hetero dense, High and ulcerative density each was in 9.5% patients on Mammogram. Micro calcification was in 19% patients on Mammogram. Well defined margin was among more than half of patients (61.9%) on Mammogram. Benign result was among majority of patients (71.4%) on Mammogram. In the study by Devi and Sailaja (2020)[55], totally 12.3% (8) women were nulliparous, out of which 2 had malignant lesions and the rest (57; 81.7%) were multiparous. Raja et al (2018)[47] found that there were 49.5% patients who were labelled as malignant. Mammogram showed 69.7% as malignant. In the study by Surati et al (2013)[41], mammography categorized the breast disease, in which 69 patients in to category-1, 2, 3 (benign lesion), one patient diagnosed as category-4 (suspicious abnormality) and 10 into category-5 (malignant) (Table 2). Most of cases of mammography were of category 1 and 2 suggestive of benign which are confirmed by FNAC and excision biopsy.

Distortion was present in 13.2% patients in this study.

The current showed that Well differentiated Circumscribed was among majority of patients (80.9%) on Sonography. Increased Vascularity was in 5.9% patients on Sonography. Hypoechoic Echogenicity was among 75% patients on Sonography. Benign result was among majority of patients on Sonography.

In the present study, BIRADS score B-2 was among more than half of patients (67.6%) followed by B-1 (13.2%), B-4 (8.8%), B-5 (4.4%), B-3 (2.9%) and B-6 & GALACT (15.%).

This study observed that Fibroadenoma was the most common FNAC finding (60.3%) and Fibroadenosis was the second most common FNAC finding (20.6%). Invasive ductal carcinoma was the third most common FNAC finding (8.8%). In the study by Karim et al (2020)[53], P has a positive predictive value (PPV) of 58.9% when compared with surgical biopsy, which is comparable with other studies. The results showed PPV 66.1% and after an ultrasound scan, the overall radiological grading (M & U) gives a PPV of 81.3%, reflecting the important role of ultrasound scans. The results showed the sensitivity of FNAC to be 73.2%. Core biopsy was diagnostic in 107 (95.5%) patients, making it a reliable tool. Alawi et al (2020)[52] found that a total of 203 symptomatic breast lesions were received at the radiological department in women under 25 years; there were 115 (56.7%) benign, 85 (41.9%) cystic, and 3 (1.5%) malignant lumps. The commonest benign lesion was fibroadenoma (104 cases, 51.2%) and all the malignant lesions were invasive ductal carcinoma (IDC) (3 cases, 1.47%). Raja et al (2018)[47] observed that on FNAC 64.8% were labelled as malignant.

In the study by Patil et al (2018)[46], out of 50 studied cases 15 turned out to be malignant on histopathology, 14 patients had intra ductal carcinoma (no special type) and 1 had mucinous carcinoma. 35 were benign lesions on histopathology, 26 had fibro adenoma, 5 had fibrocystic disease and 2 had mammary hamartoma.

In the study by Shinde et al (2018)[48], clinical breast examination had sensitivity of 87.09%; specificity of 90.20%; positive predictive value of 84.37%; negative predictive value of 92% and accuracy of 89.02%. Ultrasonography had sensitivity of 80.65%; specificity of 94.23%; positive predictive value of 89.3%; negative predictive value of 89.1% and accuracy of 89.16%. Fine needle aspiration cytology had sensitivity of 86.21%; specificity of 100%; positive predictive value of 100%; negative predictive value of 92.9% and accuracy of 95.06%. The triad of Clinical breast examination, Ultrasonography and fine needle aspiration cytology (modified triple test) had sensitivity of 95.65%; specificity of 100%; positive predictive value of 100%; negative predictive value of 97.87% and accuracy of 98.55%.

In this study, Conservative treatment was given among majority of patients (83.8%) followed by MRM in GA (11.8%) and Excision lump in GA (4.4%). Surati et al (2013) reported that all the benign disease treated by excision biopsy and confirmed by histopathological examination. Ten malignant lesions were treated by modified radical mastectomy

In this study, Follow-up period less than one month was among more than one third of patients (44.1%) followed by 1 month (35.3%), 2 months (19.1%) and 4 months (1.5%).

Improvement was among majority of patients (89.7%) in the current study.

In the present study, TT was positive in 8.8% patients and indeterminant was in 1.5% patients. MTT was positive in 14.7% patients and indeterminant was in 2.9% patients. Vishnuteja et al (2021)[56] showed that Ultrasound when replacing mammography served as effective an imaging modality in palpable breast lumps and was more comprehensive. Ultrasound breast aided biopsy techniques by guidance to the representative area than increasing yield. CNB was a suitable alternative when FNA was inconclusive and might offer additional information. Thus, the use of Modified Triple Test (MTT) to complement findings in differential diagnosis of a lesion in a symptomatic women seeking medical care deserved acceptance and further evolution. Devi and Sailaja (2020)[55] concluded that among the three components of the triple assessment, the cytopathological diagnosis was considered to be the most reliable component especially in doubtful cases. Amudala et al (2019)[50] observed that the final study group (N=57) underwent the Modified Triple Test (MTT) followed by excision biopsy, the results of which were available for comparison. Out of 57 cases that underwent triple assessment and histopathological assessment were 5 discordant results. These cases were given as malignant lesions by triple assessment and later they proved to be benign lesions on histopathological report.

Kumar et al (2020)[54] showed that the result of physical examination showed sensitivity 92.67% and specificity 96.67% for diagnosing malignant breast lesion by MTT. The ultra-sonography revealed 91.33% of sensitivity, 98.66% of specificity. FNAC revealed that 96.25% sensitivity while specificity was 99.57%. The study concluded that triple assessment was an easily available, cost effective, least invasive, rapid and patient compliant diagnostic tool for diagnosis of breast lump. The study concluded that triple assessment was an easily available, cost effective, least invasive, rapid and patient compliant diagnostic tool for diagnosis of breast lump. Solanki et al (2020)[51] evaluated accuracy of modified triple assessment in the preoperative diagnosis of patients with breast carcinoma. Results showed sensitivity and specificity of all the modalities used in triple assessment when combined together was 100% and 99.3%, respectively. Positive predictive

value was 93.3%, negative predictive value was 100%, p-value was highly significant (p< 0001). Jain and Jain (2019)[49] obtained 100% sensitivity using triple test in all age groups when each element was interpreted as malignant and 100% specificity (P < 0.001) when each element was interpreted as benign with diagnostic accuracy of almost 100% in concordant cases. In the study by Raja et al (2018)[47], the results of triple assessment showed 72.4% as malignant. Histopathology results showed 73.3% as malignant, thus showing that in overall study population 71.5% were true positives, 25.7% were true negatives, 1% were false positives and 2.0% were false negatives.

In the study by Patil et al (2018)[46], out of 50 patients, 34 had MTTS score of 3 or 4 points all of which were proved benign on histopathology report.15 patients had MTTS score of 6 and above and all were malignant on HPR, out of which 14 were intraductal carcinoma. Only 1 patient had a score of 5 and it was proved to be benign.

CONCLUSION

CONCLUSION

Breast carcinoma is one of the leading killer in both developed and developing countries. So, the Consciousness about this is increasing in the society. Screening for breast cancer is one of the most common prescribed procedures. The main aim of this investigation is to identify the mass and to differentiate whether the lesion is a benign or a malignant disease. The importance of early detection of cancer and not to miss a malignant lesion in early stage of disease and the current medico-legal environment encourage an aggressive biopsy approach to breast problems. The large number of biopsies performed for benign breast abnormalities has long been recognized as a serious problem. Excessive biopsies for benign lesions have adverse effects on society and on the women who undergo them by increasing the costs of screening projects, causing morbidity, and adding to the barriers that keep women from using a potentially life saving procedure.

Combined use of mammography and sonography plays an important role in the management of palpable breast lesions. Its applications are as follows:

a. Characterises palpable mass lesion.

b. Guides the further course of action based on the findings that includes prompt biopsy.

c. It also avoids unnecessary interventions in which imaging findings are unequivocally benign.

d. Negative findings of combined mammographic and sonographic imaging have very high specificity and are reassuring to the patient

BIBLIOGRAPHY

1. Kamal MZ,Banu NR,Alam MM,Das UK,Karmoker RK. Evaluation of Breast Lump - Comparison between True-cut Needle Biopsy and FNAC in MMCH: A Study of 100 Cases. Mymensingh medical journal 2020.
2. Haagensen CD. Physician's role in the detection and diagnosis of breast disease. In: Diseases of the Breast. 2nd ed. Philadelphia: W.B. Saunders; 1971. p. 99-148
3. Figueroa JD, Pfeiffer RM, Brinton LA, Palakal MM, Degnim AC, Radisky D, et al. Standardized measures of lobular involution and subsequent breast cancer risk among women with benign breast disease: A nested case-control study. Breast Cancer Res Treat 2016;159:163-72.
4. Ferlay J, Soerjomataram I, Dikshit R, Eser S, Mathers C, Rebelo M, et al. Cancer incidence and mortality worldwide: Sources, methods and major patterns in GLOBOCAN 2012. Int J Cancer 2015;136:E359-86.
5. Siu AL. U.S. Preventive Services Task Force. Screening for breast cancer: U.S. Preventive services task force recommendation statement. Ann Intern Med 2016;164:279-96.
6. Børresen-Dale AL. TP53 and breast cancer. Hum Mutat 2003;21:292-300.
7. Dehn TC, Clarke J, Dixon JM, Crucioli V, Greenall MJ, Lee EC. Fine needle aspiration cytology, with immediate reporting, in the outpatient diagnosis of breast disease. Ann R Coll Surg Engl 1987;69:280-2.
8. Ghimire B, Khan MI, Bibhusal T, Singh Y. Accuracy of Triple Test Score in the diagnosis of palpable breast lump. J Nepal Med Assoc 2008;47:189-92.
9. Nagar S, Iacco A, Riggs T, Kestenberg W. Analysis of fine needle aspiration versus core needle biopsy in palpable breast lesions.Am J Surg 2012;204:193-98.
10. Gutwein LG, Ang DN, Liu H. Utilization of minimally invasive breast biopsy for the evaluation of suspicious breast lesions. Am J Surg 2011;202:127-30.
11. Jan M, Mattoo JA, Salroo NA, Ahangar S. Triple assessment in the diagnosis of breast cancer in Kashmir. Indian J Surg 2010;72:97-103
12. Kristoffersen Wiberg M, Aspelin P, Perbeck L. Value of MR imaging in clinical evaluation of breast lesions. ActaRadiol 2002;43:275-81.
13. Johansen C. A clinical study with special reference to diagnostic procedures. Acta clin Scand 1975;451(l)1-70.
14. Hermansen C, Skovgaard Poulsen H, Jensen J. Diagnostic reliability of combined physical examination, mammography and fine needle puncture (triple test) in breast tumours- a prospective study. Cancer 1987;60(8)1866- 1868.

15. Vetto JT, Pommier RF, Schmidt WA, Eppich H, Alexander PW. Diagnosis of palpable breast lesions in younger women by the modified triple test is accurate and cost-effective. Arch Surg 1996;131(9)967-974.
16. Elmore JG, Barton MB, Moceri VM, et al. Ten-year risk of false positive screening mammograms and clinical breast examinations. N Engl J Med 1998; 338.
17. Svane G, Silfverswärd C. Stereotaxic needle biopsy of non-palpable breast lesions. Cytologic and histopathologic fndings. Acta Radiol Diagn (Stockh) 1983; 24.
18. Esserman Laura J and Joe Bonnie N. Diagnostic evaluation of women with suspected breast cancer. Up-to-date August 20, 2015
19. NCHS Data Brief, Mortality in the United States 2013.
20. Nardin S, Mora E, Varughese FM, D'Avanzo F, Vachanaram AR, Rossi V, Saggia C, Rubinelli S, Gennari A. Breast Cancer Survivorship, Quality of Life, and Late Toxicities. Front Oncol 2020; 16.
21. Bellanger M, Zeinomar N, Tehranifar P, Terry MB. Are Global Breast Cancer Incidence and Mortality Patterns Related to Country-Specific Economic Development and Prevention Strategies? J. Glob. Oncol 2018; 4: 1–16.
22. Elmore JG, Armstrong K, Lehman CD, Fletcher SW. Screening for breast cancer. JAMA 2005: 293: 1245–1256.
23. Sabel S, Micahel. Clinical manifestations and diagnosis of a palpable breast mass., Up-to-date., April 24, 2015
24. Bickley Lynn S. Bates' Guide to Physical Examination and History Taking 9th ed. Publ. June 13, 2007.
25. Klein S. Evaluation of Palpable Breast Masses. Am Fam Physician 2005;71(9):1731-1738
26. Sabel S, Micahel. Clinical manifestations and diagnosis of a palpable breast mass. Up-to-date., April 24, 2015
27. Campbell HS, Fletcher SW, Pilgrim CA, Morgan TM, Lin S. Improving physicians' and nurses' clinical breast examination: a randomized controlled trial. Am J Prev Med 1991;7:1–8.
28. Smart CR, Hartmann WH, Beahrs OH, Garfnkel L. Insights into breast cancer screening of younger women. Evidence from the 14-year follow-up of the Breast Cancer Detection Demonstration Project. Cancer 1993; 72.
29. Lin C, Moore D, DeMichele A, et al. Detection of locally advanced breast cancer in the I-SPY TRIAL in the interval between routine screening J Clin Oncol 2009; 27.
30. Stavros AT, Thickman D, Rapp CL, et al. Solid breast nodules: use of sonography to distinguish between benign and malignant lesions. Radiology 1995; 196.

31. Silverstein MJ, Recht A, Lagios MD, et al. Special report: Consensus conference III. Image-detected breast cancer: state-of-the-art diagnosis and treatment. J Am Coll Surg 2009; 209.
32. Breast Imaging Reporting and Data System (BI-RADS) Atlas, 4th ed., American College of Radiology, Reston, VA 2003
33. Olsen ML, Morton MJ, Stan DL, Pruthi S. Is there a role for magnetic resonance imaging in diagnosing palpable breast masses when mammogram and ultrasound are negative? J Womens Health (Larchmt) 2012;21(11):1149-54.
34. Bleicher RJ, Ciocca RM, Egleston BL, et al. Association of routine pretreatment magnetic resonance imaging with time to surgery, mastectomy rate, and margin status. J Am Coll Surg 2009; 209.
35. Masood S. Fine needle aspiration biopsy of nonpalpable breast lesions. In: Cytopathology Annual 1993, Schmidt W (Ed), Williams and Wilkins, Baltimore 1994.
36. Bleiweiss IJ. Pathology of Breast Cancer. Up-to-date., December 19, 2013
37. Rubin M, Horiuchi K, Joy N, Haun W, Read R, Ratzer E, et al. Use of fine needle aspiration for solid breast lesions is accurate and cost-effective. Am J Surg 1997;174:694–6.
38. Morris KT, Pommier RF, Morris A, Schmidt WA, Beagle G, Alexander PW, Toth Fejel S, Schmidt J, Vetto JT: Usefulness of the triple test score for palpable breast masses. Arch Surg 2001; 136(9): 1008-12.
39. Wai CJ, Al-Mubarak G, Homer MJ, Goldkamp A, Samenfeld-Specht M, Lee Y et al. A modified triple test for palpable breast masses: the value of ultrasound and core needle biopsy. Ann Surg Oncol 2013;20(3):850-5.
40. Vaithianathan R, Sundaresan V, Santhanam R. Value of modified triple test in the diagnosis of palpable breast lumps. Int J Cur Res Rev 2013; 5 (5).
41. Surati K, Suthar K, Parekh B, Shah J. A study of accuracy of triple assessment as a clinical tool for the diagnosis of a palpable breast lump. International Journal of Medical Science and Public Health 2013; 2 (3).
42. Khoda L, Kapa B, Singh KG, Gojendra T, Singh LR, Sharma KL. Evaluation of modified triple test (clinical breast examination, ultrasonography, and fine-needle aspiration cytology) in the diagnosis of palpable breast lumps. J Med Soc 2015;29:26-30.
43. Rajachidambaram K, Sowmya TK. Modified triple assessment in breast lumps. J. Evolution Med. Dent. Sci 2016;5(36):2123-2130.
44. Lingaraju N, Narashimhaswamy P, Mohan RM, Venkatesh N. Evaluation of Palpable Breast Lumps under the Age of 35 Years with Triple Assessment. Int J Sci Stud 2016;4(1):10-15.

45. Mannarakkal R, Suaib M, Ali A, Razak A. Triple Test is it Effective in Early Detection of Carcinoma Breast. IJSS Journal of Surgery 2017;3(5):8-12.
46. Patil MM, Gurav PD, Khan MHSA. Diagnostic Approach to Palpable Breast Lump by Modified Triple Test Score- A Prospective Study. JMSCR 2018; 6 (12).
47. Raja R, Hanif H, Mahmood H. Accuracy of Triple Assessment in Diagnosis of Breast Cancer in Women More than 40 Years of Age. Journal of Rawalpindi Medical College (JRMC); 2018;22(2): 112-115
48. Shinde N, Baseer MA, Desai K. Study of Clinical Examination, Ultrasonography, Cytology Parameters in the Diagnosis of Palpable Breast Lump. New Indian J Surg 2018;9(3):328-33.
49. Jain A, Jain R. Diagnostic accuracy of triple test in breast pathologies of women above 20 years of age. Saudi Surg J 2019;7:143-7.
50. Amudala A, Reddy KD, Reddy M. Evaluation of Palpable Breast Lumps using Triple Assessment. International Journal of Engineering Science and Computing 2019.
51. Solanki PV, Juneja IA, Chaudhari ND. Modified triple assessment in the diagnosis of breast lump in Saurashtra region of Gujarat Int Surg J 2020;7:3289-93.
52. Alawi A, Hasan M, Harraz MM et al. Breast lesions in women under 25 years: radiologic-pathologic correlation. Egyptian Journal of Radiology and Nuclear Medicine 2020; 51.
53. Karim M, Khan K A, Khan A, et al. Triple Assessment of Breast Lump: Should We Perform Core Biopsy for Every Patient? Cureus 2020; 12(3).
54. Kumar R, Kumar K, Madal M, Singh RK, & Kumar S. Modified triple assessment in the diagnosis of breast lump in Bihar, India. International Journal of Health and Clinical Research 2020; 3(8), 205–209.
55. Devi GR and Sailaja K. A study on the diagnostic approach to palpable breast lump through a modified triple assessment. Surgical Review: International Journal of Surgery, Trauma and Orthopedics 2020; 6(04), 276-281.
56. Vishnuteja M, Rout SS and Sahoo PK. A prospective study of triple assessment in evaluation of breast lump. Int. J. Adv. Res 2021 9(03): 65-71.
57. Brahmachari S, Vasuniya V, Mukherjee S, Chaurasia A. Quadruple score: A novel scoring system for diagnosing breast lump – A retrospective pilot study. J Pharm Bioall Sci 2021;13:S1381-5.
58. Morrow M, Wong S, Venta L. The evaluation of breast masses in women younger than forty years of age. Surgery 1998. 124(4): 634-40
59. Beyer T, Moonka R. Normal mammography and ultrasonography in the setting of palpable breast cancer. Am J Surg 2003; 185(5): 416-9.

60. Donegan WL. Evaluation of a palpable breast mass. N Engl J Med 1992; 24; 327(13): 937-42.
61. Schuhmann R, Hubner F, Brose C, Eckel S, Geier G, Kraus H, Schondorf H, Schondorf NK: The value of aspiration cytology within the scope of triple diagnosis of palpable breast changes (Geburtshilfe Frauenheilkd). 1995; 55(10): 553-8.
62. Vetto JT, Petty JK, Dunn N, Prouser NC, Austin DF: Structure clinical breast examination (CBE) training results in objective improvement in CBE skills. J Cancer Educ 2002; 17(3): 124-7.
63. Grobler SP, du Toit RS, Brink C, Divall PD, Middlecote BD, Nel CJ: Pre-operative evaluation of palpable breast tumours. S Afr J Surg 1990; 28(4):128-32.
64. Deliiski T, Baichev G, Dikov D, Todorova A, Gorchev G: The triple diagnosis of breast diseases. Akush Ginekol (Sofiia) 1998; 37(4): 33-4.
65. Flobbe K., Kessels AG., Severens JL., Beets GL.,de Koning HJ., Von Meyenfeld MF., Van Engelshoven JM. Costs and effects of Ultrasonogaphy in the evaluation of breast masses. Int J Technol Assess Health Care 2004

SANTOSH MEDICAL COLLEGE & HOSPITAL

Details of Patient Information Sheet

Human Subject Research Proposal

1) Identifying Data
Name of Researcher: Dr. Abhinav Mone
Department: Department of General Surgery
Title of Project**: EVALUATION OF BREAST LUMP OF DIFFERENT DENSITY BY MODIFIED TRIPLE ASSESSMENT AND TRIPLE ASSESSMENT.**
2) Description of Human Subjects Safeguards and Rights:
A) Possible psychological or physical risk or discomfort, involved in research
Yes □ NO □ (if no, skip item B)
If Yes, answer the following
Why necessary?

1. To have the common disease
2. Specificity and sensitivity of the treatment

B) Make sure the following questions are answered in your research proposal on collection of Data:
1) When will it take place?
Jan 2021 to June 2022.
2) What length of time needed for complete examination of the patient?
Approx 1 hour.
3) What period of time needed?
Approx 1 year.
4) Which specific place within institution?
Department of Surgery.
5) How much population required including number of subjects?
6) Name of instrument to be used for data collection?
A pre-operative Serum Albumin level as the predictor of post-operative morbidity and mortality in major general surgeries.
7) Methodology to be used (write details)?

- A detailed history of all patients will be taken and a thorough clinical examination will be done. All patients will be analyzed in various aspects like age, sex, body weight, BMI, risk factors, mode of presentation, and laboratory-based evidence. Patients will also be evaluated for other risk factors like obesity, HTN, DM and malignant disease.
- Pre-operative routine investigations like Blood including Serum Albumin, Urine, CxR, and USG will be done and their correlation with the post-operative morbidities or mortality will be established.
- The analyzed data will be compared with other series in literature and discussed. A master chart dealing with all aspects will be designed and presented. A proforma will be used for the study purpose.

C) Will Subjects be given research results if they so request?
Yes □ No □

PLAGRISM CERTIFICATE

Ouriginal by Turnitin

Document Information

Analyzed document	plag thesis.edited final grammar correction.edited.docx (D149233761)
Submitted	11/10/2022 12:23:00 PM
Submitted by	Dr Jyoti Batra
Submitter email	drjyotibatra89@gmail.com
Similarity	6%
Analysis address	drjyotibatra89.sug@analysis.urkund.com

Sources included in the report

W	URL: http://repository-tnmgrmu.ac.in/11421/1/220100419naresh_kumar.pdf Fetched: 12/28/2021 7:00:51 AM	2
W	URL: https://www.researchgate.net/publication/307838757_DIAGNOSTIC_APPROACH_TO_PALPABLE_BREAST_L_UM... Fetched: 2/11/2020 6:33:23 AM	2
W	URL: http://repository-tnmgrmu.ac.in/7845/1/220100306lakshminarayanan.pdf Fetched: 4/4/2022 4:29:36 AM	11
W	URL: http://52.172.27.147:8080/jspui/bitstream/123456789/36945/1/Dr.Anuprakash.pdf Fetched: 11/23/2021 6:25:32 AM	2

Entire Document

INTRODUCTION

A breast lump is any discrete mass noticed by the patient or physician.. The most important risk factors are menarche, menopause, use of steroids, birth control pills, previous breast surgery, history of breast trauma, and radiation exposure (Haagensen, 1971). Clinical presentations of benign breast disease are pain, lumps, or breast discharge. Breast cancer in its early stage does not cause pain. When cancer grows, it causes changes in the size or shape of the breast. In advanced cases, the tumour can show signs of skin ulceration and fixation to the chest wall, lymphadenopathy and distant metastasis (Figueroa et al., 2016).

worldwide, representing nearly a quarter (25%) of all cancers, with an estimated 1.67 million new cancer cases diagnosed in 2012. Women from less-developed regions (883,000 cases) have slightly more chances compared to more developed (794,000) areas (Ferlay et al., 2015). According to the latest edition of the United States Preventive Services Task Force (USPSTF), biennial screening mammography is recommended for all women aged 50–74 years (Siu, 2016).

Like any tumour, breast tumours are classified into benign and malignant. The majority of breast tumours are benign. The common benign breast tumours are fibroadenoma and breast cysts. The most frequently diagnosed breast cancers are ductal carcinoma in situ (85%–90%), lobular carcinoma in situ (about 8%), and infiltrating lobular carcinoma (10%–15%) (Børresen-Dale, 2003).

It often .

None are reliable (Ghimire et al., 2008). . There are three pathological procedures for diagnosing breast cancer, i.e., fine needle aspiration cytology, core needle biopsy and surgical biopsy (Nagar et al., 2012).

and both have comparable predictive values. Fnac is minimally invasive, causing pain similar to prick for blood sampling .

Open/surgical biopsy is a gold standard in diagnosing breast cancer. It is invasive, time-consuming, associated with significant patient anxiety and exposes patients to more than one surgical procedure (Ghimire et al., 2008).

Open biopsy is unlikely to be an initial diagnostic approach unless a percutaneous or image-guided biopsy is impossible. It may become necessary to investigate further discordant findings (Gutwein et al., 2011).

The major disadvantage of FNAC is its inability to distinguish between CIS (carcinoma in situ) and invasive malignancy, along with a high rate of insufficient samples. Hence a diagnostic tool must be employed for pre-operative diagnosis of breast cancer which is least invasive, cost-effective and readily available with accuracy comparable to conventional surgical biopsy (Ghimire et al., 2008).

CERTIFICATE BY THE STATISTICIAN

Dr. Debarshi Jana (PhD)
Consultant Statistician
Young Scientist,
Department of Science & Technology,
IPGMER and SSKM Hospital,
Kolkata - 700020.

Contact No- 9836002686
Email.ID:debarsheejana@gmail.com

TO WHOM IT MAY CONCERN

This is to certify that the statistical analysis component of the dissertation titled**"Evaluation and comparison of breast lump by Modified triple assessment and Triple assessment""** done by Dr. Riya Parashar, 3rd year post graduate trainee in the Department of General Surgery, Santosh Medical College and Hospital, Ghaziabad, has been conducted under my direct guidance and supervision.

All the statistical calculations of this study are authentic and correct to the best of my knowledge.

Wish him all the success in her life.

Date: 10/11/2022

Debarshi Jana

Dr. Debarshi Jana

Dr. Debarshi Jana
PhD
Young Scientist (DST)
IPGMER and SSKM Hospital
Kolkata

Residence: 14/11, IC, Phase-I, Thakurpukur Hsg Soc, M. G. Road, Kolkata-700104

PROFORMA

NAME: AGE:

SEX: IPNO:

OCCUPATION:

D.O.A: D.O.D:

HISTORY OF PRESENTING ILLNESS:

Lump:

1)Duration
2)Mode of onset
3)Other symptoms associated with lump

Pain:

1)Duration &Nature of pain
2)Site
3)Time &mode of onset
4)Site of pain
5)Character of pain Radiation
6)Aggravating factors
7)Relieving factors :

NIPPLE DISCHARGE:
Colour
Quantity

FAMILY HISTORY:

Marital status

CHIEF COMPLAINTS

Lump Pain

Nipple discharge
Nipple retractions &others

PAST HISTORY
H/O Similar Complaints
Duration Treatment taken
Previous surgeries SHT /DM/TB

MENSTRUAL HISTORY

GENERAL EXAMINATION:

1. General survey
2. Body build and nourishment
3. Appearance
4. Attitude Restless/Quiet
5. Dehydration Mild/ Moderate/ Severe/Nil
6. Anaemia/ Jaundice/ Clubbing/ Cyanosis/ Lymphadenopathy/ Pedal oedema
7. Pulse
8. Temperature
9. Respiratory rate
10. Blood pressure

LOCAL EXAMINATION

1. INSPECTION –

BREAST

Position

Size and shape

Any puckering or dimpling Skin over the breast

NIPPLE Position Size and shape

Surface Discharge

AREOLA ARM AND THORAX

AXILLA AND SUPRACLAVICULAR FOSSA

2) **PALPATION:**

Local rise of temperature

Tenderness

Situation Size and shape

Surface and margin

Consistency Fluctuation

Fixity to the skin

Fixity to the breast tissue

Fixity to the underlying fascia and muscles Fixity to the chest wall Palpation of the nipple

EXAMINATION OF LYMPH NODES

Pectoral group
Brachial group
Subscapular group
Central group
Apical group
Cervical

RECTAL EXAMINATION:
VAGINAL EXAMINATION:
SYSTEMIC EXAMINATION:

- Cardiovascular system
- Respiratory system
- Central nervous system
- Genito-urinary system Abdominal examination

- INVESTIGATIONS

BLOOD INVESTIGATIONS

Hb

TC
DC
ESR
BT CT
BLOOD GROUP & Rh type
Sugar
Urea Creatinine
Chest x-ray
SEROLOGY
HIV
HBSAg
HCV

USG
1.Distortion 2. CIRCUMSCRIBED 3. Vascularity 4. Echogencity

MAMMOGRAPHY
1.Density 2. Calcification 3. Margin

FNAC

DIAGNOSIS:

Management
surgical notes

SANTOSH MEDICAL COLLEGE AND HOSPITAL (GHAZIABAD)
INFORMED CONSENT

I_____Son/Daughter/Wife of_____resident of. hereby declare that I give my full, free and voluntary informed consent in the thesis "Evaluation and comparison of breast lump by modified triple assessment and triple assessment"

Dr._____ has informed me to my full satisfaction, in the language I understand, about the purpose, nature of study and various laboratory investigations for the study to be carried out. I have been informed about the duration of the study and instructions to be followed during the study period.

I give full consent for being enrolled in the above study and I reserve my rights to withdraw from this study, whenever I wish without prejudice of my right to undergo further treatment at Santosh Hospital, Ghaziabad U.P.

Patient's/ Patient's relative's signature Or thumb impression

Doctors signature

Name:

Date:

We have witnessed that the patient signed the above form in the presence of his free will after fully understanding its content.

Signature of Witness

Name

Signature of Investigator

Dr. Riya Parashar

Designation: PG Department of General Surgery

Contact No: 9584817706

संतोष मेडिकल कॉलेज एवं अस्पताल (गाजियाबाद)

<u>सहमति पत्र (सूचित)</u>

मैं _____ बेटा/ बेटी/ पत्नी_____निवासी _____ घोषणा करता हूं कि डॉ ._____, ने मुझे मेरी भाषा में अपने अध्ययन "**Evaluation and comparison of breast lump by Modified triple assessment and Triple assessment"** के उद्देश्य के बारे में, और अध्ययन के दौरान अपनाई जाने वाली विभिन्न प्रयोगशाला जांच के बारे में सूचित कर दिया है। मुझे अध्ययनकी अवधि और उसके दौरान अपनाए जाने वाले निर्देश भी मेरी भाषा मे समझा दिए गए हैं| मैं उपरोक्त अध्ययन में बिना किसी दबाव के दाखिला ले रहा हूं और पूर्ण सहमति दे रहा हूं | सन्तोष अस्पताल, गाजियाबाद में अपने आगे के उपचार पर बिना प्रतिकूल प्रभाव डाले इस अध्ययन से और प्रयोगशाला जांच की प्रकृति से मैं जब चाहूँ बाहर जाने के अपने अधिकार को सुरक्षित रख रहा हूं |

रोगी / रोगी के रिश्तेदार के हस्ताक्षर डॉक्टर के हस्ताक्षर

नाम

दिनांक:

मेरी उपस्थिति में मरीज ने पूरी तरह से डाकटर के बताए गए अध्ययन और निर्देशों को समझने के बादअपनी स्वतंत्र इच्छा से ऊपर के फार्म पर हस्ताक्षर किए हैं ।

हस्ताक्षर

नाम: डॉ. रिया पराशर
पदनाम: पीजी
शल्य चिकित्सा विभाग
संपर्क नंबर- 9584817706

MASTER CHART

INITIALS	AGE	UHID	LUMP					SIDE	LOCATIO	NIPPLE D	CYCLE	AXILLAR	SHAPE	MARGIN	MAMMO					SONOGRAPHY					ADS SCO	FNAC	MANAGEMENT			TT	MTT
			size(cm)	Duration	Recurrence	Tenderness	Signs of inflam.								Density	Calcification	Margins	Result	Distortion	Circumscribed	Vascularity	Echogenecity	Result				Follow up	Improvement		
1.ANITA	50	17089461	4*2*1	2 yrs	No	Absent	Absent	RT	N-A comp	Absent	Regular	None	ROUND	WD	Normal	absent	No lump	B	Normal	well	Normal	Hypo	B	B-3	invasive d	Excision lump in ga	15 days	yes	Neg	Pos
2.SUSHILA	45	13005899	6*7	2yrs	no	Present	Absent	LT	uo quad	Absent	Regular	central	ROUND	WD	ulcerative	micro	ill defined	M	present	ill	increased	hetero hyp	M	B-6	Invasive c	MRM in ga	1 month	yes	Pos	pos
3.PREETI	33	17096393	2*2	8 month	no	present	present	LT	uo quad	bloody	regular	none	OVAL	WD	Normal	absent	well define	B	present	well	increased	hetero hyp	M	B-5	Invasive c	MRM in ga	1 month	YES	neg	pos
4.SANA	23	17100907	3*2	2-3 month	no	Present	Absent	RT	circumare	Absent	Regular	none	ROUND	WD	Hetero der	absent	well define	B	Absent	well	Normal	hetero den	M	B-2	fibroaden	Excision lump in ga	15days	yes	neg	neg
5.GEETA	45	13009281	5*6	6 month	no	Absent	Absent	LT	uo quad	Absent	Regular	absent	OVAL	-	ulcerative	2-3 puncta	irregular	SM	present	ill	increased	hypo	B	B-4	adenosis v	MRM in ga	2 month	YES	pos	pos
6.BABLI	49	17101773	5*3	5 days	no	Present	absent	LT	ui quad	Absent	Regular	absent	ROUND	-	Normal	absent	Regular	B	absent	well	normal	Dense	B	B-2	fibroaden	conservative manage	1 month	yes		NEG
7.SUKHDEVI	60	17140569	2*1	3 month	No	Absent	absent	RT	ui quad	Present	Regular	absent	ROUND		Assymetri	absent	irregular	SM					B	B-4	invasive d	MRM in ga	2 month	yes	Pos	
8.POONAM	32	17147560	5*4	3 month	no	Present	Absent	RT	uo quad	Absent	Regular	absent	OVAL	ID					normal	Well	Increase	Hypo	B	B-2	fibroaden	Excision lump in ga	15 days	yes	nil	pos
9.RAJNI	48	17136572	5*4	1 yr	no	Absent	absent	RT	uo quad	absent	regular	absent	ROUND	ID	Hetero der	absent	well define	SM					B	B-4	invasive d	mrm in ga	1 month	yes	Pos	
10.USHA	55	17207088	4*4	2 month	no	Absent	present	RT	3oclk	serous	regular	absent	OVAL	ID	High	Micro	Spiculated	SM	Present	spiculated	Normal	hyper	M	B-4	invasive d	mrm in ga	2 month	yes	Pos	Pos
11.POONAM	32	13995678	2*3	3 month	no	Present	absent	RT	6oclk	absent	Regular	absent	OVAL	WD	Normal	absent	well define	B	Absent	well	normal	hypo	B	B-2	fibroaden	conservative	1 month	yes	neg	Pos
12.RAJKUMAR	55	17130056	3*2	3 month	no	present	absent	LT	uo quad	Absent	Regular	absent	ROUND	ID					Absent	well	Normal	hypo	B	B-4	invasive d	mrm in ga	15 days	yes		pos
13.RENU	33	17345005	3*3	6 month	no	absent	absent	RT	uo quad	absent	Regular	absent	OVAL	WD	normal	absent	well define	B	Absent	well	normal	hypo	SM	B-2	fibroaden	conservative	15 days	yes	neg	neg
14.VARSHA	23	17134236	2*1	3 month	no	absent	absent	RT	lo quad	absent	Regular	absent	ROUND	WD					Absent	well	Normal	hypo	B	B-2	fibroaden	conservative	20 days	yes	neg	neg
15.Anuradha	40	17003456	3*3	8 month	No	Present	absent	LT	3oclk	Absent	irregular	absent	ROUND	WD	Normal	absent	well define	B	Absent	well	Normal	hypo	B	B-2	fibroaden	conservative	1 month	no	neg	neg
16.MUNESH	50	13005677	2*2	7 month	no	present	absent	LT	lo quad	absent	Regular	absent	ROUND	ID	normal	absent	well define	B	absent	well	Normal	hypo	B	B-2	fibroaden	conservative	1 month	yes	neg	neg
17.SONI	27	17008765	1*2	6 month	no	Present	absent	RT+LT	li quad	Absent	Regular	absent	OVAL	WD					absent	ill	Normal	hypo	SM	GALACT	GALACT	conservative	1 month	yes	indetermin	indetermin
18.SHIMLA	35	17146752	2*2	4 month	no	present	Absent	RT+LT	ui quad	Absent	irregular	absent	ROUND	WD					Absent	well	Normal	hypo	B	B-3	fibroaden	conservative	1 month	yes		neg
19.KAMLESH	58	13005674	3*2	3 month	no	Absent	Absent	LT	li quad	absent	irregular	absent	OVAL	WD	Normal	absent	Regular	B	present	ill	Normal	hypo	B	B-1	inconclusi	conservative	1 month	yes	Neg	indetermin
20.MADHU	35	17223452	3*4	6-7month	no	Absent	Absent	LT	3oclk	Absent	Regular	none	ROUND	WD					absent	well	normal	hypo	B	B-2	fibroaden	conservative	1 month	yes		neg
21.DURGA	28	17334634	1*1	8 month	yes	present	absent	RT	uo quad	absent	regular	none	ROUND	ID					present	well	Normal	hypo	B	B-1	fibroaden	conservative	15 days	yes		neg
22.RUKSANA	27	17009944	2*2	4 month	no	Present	Absent	RT	ui quad	Absent	irregular	none	OVAL	WD					Absent	ill	Normal	hypo	B	B-2	fibroaden	conservative	20 days	yes		neg
23.KHUSBOO	17	17008845	3*3	5-6 month	yes	Absent	Absent	RT	li quad	Absent	Regular	None	ROUND	ID					Absent	well	Normal	hypo	B	B-5	fibroaden	conservative	20 days	yes		neg
24.SUMITRA	60	17564055	2*2	4 month	yes	Present	Absent	RT	ui quad	Absent	Regular	None	OVAL	WD	High	Micro	irregular	M	absent	well	normal	hypo	M	B-2	fibroaden	conservative	1 month	no	pos	neg
25.KANTA	46	13450066	3*2	2 month	no	Present	Absent	RT	uo quad	Absent	Regular	None	OVAL	WD					Absent	ill	Normal	hypo	B	B-1	benign bre	conservative	1 month	yes		neg
26.NIDHI	29	17221457	2*2	3-4month	no	Present	Absent	LT	ui quad	Absent	irregular	None	ROUND	ID					Absent	well	Normal	hypo	M	B-5	invasive d	conservative	1 month	yes		pos
27.DURGESH	35	17010222	2*1	2 month	yes	Present	Absent	LT	uo quad	Absent	Regular	None	ROUND	WD					Absent	ill	Normal	iso	B	B-1	fibroaden	conservative	15days	yes		neg
28.BABITA	35	17002211	3*2	4 month	no	Present	Absent	RT	uo quad	Absent	irregular	none	ROUND	ID					Absent	ill	Normal	iso	B	B-1	fibroaden	conservative	20 days	yes		neg
29.SHAHNA	32	17002123	2*2	5 month	no	present	Absent	LT	uo quad	Absent	Regular	none	ROUND	WD					Absent	well	Normal	hypo	B	B-2	fibroaden	conservative	10 days	yes		neg
30.SHOBHA	67	17230012	3*1	4 month	no	Present	Absent	RT	ui quad	Absent	regular	none	ROUND	WD	normal	absent	well define	B	absent	well	normal	hypo	B	B2	fibroaden	conservative	15 days	yes	neg	neg
31.MANISHA	27	17003242	2*2	3-4month	no	Present	Absent	RT	uo quad	Absent	Regular	none	ROUND	WD					present	well	Normal	iso	B	B-2	fibroaden	conservative	1 month	yes		neg
32.MALTI	42	17663040	2*1	1 month	yes	Present	Absent	RT	uo quad	Absent	Regular	none	OVAL	WD	Normal	absent	well define	B	present	well	Normal	hypo	B	B-1	fibroaden	conservative	1 month	no	Neg	neg
33.NEHA	31	17550350	2*2	2 month	no	Present	Absent	LT	ui quad	Absent	Regular	none	ROUND	WD					present	well	Normal	hypo	B	B-2	fibroaden	conservative	2 month	yes		neg
34.PAYAL	26	17004430	3*3	3 month	no	Present	Absent	LT	li quad	Absent	Regular	none	ROUND	WD					Absent	well	Normal	iso	B	B-2	fibroaden	conservative	1 month	yes		neg
35.NEETU	26	13010033	2*2	2 month	no	Present	Absent	RT	uo quad	Absent	Regular	None	OVAL	WD					Absent	well	Normal	hypo	B	B-2	fibroaden	conservative	2 month	no		neg
36.PARANJEET	28	13001243	3*2	1 month	no	Present	Absent	LT	uo quad	Absent	Regular	None	OVAL	WD					Absent	well	Normal	hypo	B	B-2	fibroaden	conservative	2 month	yes		neg
37.PREETI	19	13087657	2*1	15 days	yes	Absent	Absent	RT	ui quad	Absent	Regular	None	ROUND	ID					Absent	ill	Normal	hypo	B	B-1	fibroaden	conservative	1 month	yes		neg
38.RAJNI	27	17007678	2*2	20 days	no	Absent	Absent	LT	uo quad	Absent	Regular	None	ROUND	ID					Absent	ill	Normal	hypo	B	B-1	fibroaden	conservative	15 days	yes		neg
39.LAXMI	24	17005678	3*3	15 days	no	Present	Absent	LT	ui quad	Absent	irregular	None	ROUND	WD					Absent	well	Normal	hypo	B	B-2	fibroaden	conservative	2 month	no		neg
40.VANDANA	37	17224098	3*2	20 days	yes	Present	Absent	LT	3oclk	Absent	Regular	None	ROUND	WD					Absent	well	Normal	hypo	B	B-2	fibroaden	conservative	2 month	yes		neg
41.ANURADHA	40	17222829	2*2	15 days	no	Present	Absent	RT	lo quad	Absent	irregular	None	OVAL	ID	Normal	absent	well define	B	Absent	well	Normal	hypo	B	B-2	fibroaden	conservative	15 days	yes	Neg	neg
42.KRISHNA	36	17005658	2*2	1 month	no	Absent	Absent	LT	ui quad	Absent	Regular	None	ROUND	WD					Absent	well	Normal	hypo	B	B-2	fibroaden	conservative	2 month	yes		neg
43.DEVESHWA	37	17007879	3*2	1 month	yes	Present	Absent	LT	3oclk	Absent	irregular	None	ROUND	ID					Absent	well	Normal	hypo	B	B-2	fibroaden	conservative	15 days	yes		neg
44.SONIYA	26	17007875	1*2	1 month	no	Present	Absent	RT	ui quad	Absent	Regular	None	ROUND	WD					Absent	well	Normal	hypo	B	B-2	fibroaden	conservative	2 month	yes		neg
45.NEELAM	23	17006758	3*2	1 month	no	Absent	Absent	LT	ui quad	Absent	Regular	None	OVAL	WD					Absent	well	Normal	hypo	B	B-2	fibroaden	conservative	15 days	yes		neg
46.CHAMELI D	39	17006744	2*2	25 days	no	Absent	Absent	LT	li quad	Absent	Regular	None	ROUND	WD					Absent	well	Normal	hypo	B	B-2	fibroaden	conservative	15 days	yes		neg
47.LAXMI	24	17097875	2*1	3 month	no	Absent	Absent	LT	3oclk	Absent	Regular	None	ROUND	WD					Absent	well	Normal	hypo	B	B-2	fibroaden	conservative	2 month	no		neg
48.MAHESHWA	22	17005674	2*1	2 month	no	Present	Absent	RT	ui quad	Absent	Regular	None	ROUND	WD					Absent	well	Normal	hypo	B	B-2	fibroaden	conservative	15days	yes		neg
49.RAJAN	34	17005566	2*1	2 month	yes	Present	Absent	RT	ui quad	Absent	Regular	None	ROUND	WD					Absent	well	Normal	hypo	B	B-2	fibroaden	conservative	15 days	yes		neg
50.SEEMA	31	17007744	3*1	3 month	yes	Present	Absent	RT	ui quad	Absent	Regular	None	OVAL	WD					Absent	well	Normal	iso	B	B-2	fibroaden	conservative	1 month	yes		neg
51.RADHA	28	17004546	2*1	1 month	no	Present	Absent	RT	ui quad	Absent	Regular	None	ROUND	WD					Absent	well	Normal	hypo	B	B-2	fibroaden	conservative	2 month	no		neg
52.ANJALI	38	13005566	3*2	2 month	yes	Absent	Absent	RT	li quad	Absent	Regular	None	OVAL	WD					Absent	well	Normal	iso	B	B-2	fibroaden	conservative	2 month	yes		neg
53.FAUZIA	30	13009956	2*2	1 month	no	Present	Absent	LT	li quad	Absent	Regular	None	ROUND	WD					Absent	well	Normal	iso	B	B-2	fibroaden	conservative	15 days	yes		neg
54.GEETA	44	17005657	3*2	1 month	no	Absent	Absent	B/L	li quad	Absent	Regular	None	ROUND	WD	normal	absent	Well defin	B	Absent	well	Normal	iso	B	B-2	fibroaden	conservative	1 month	yes	neg	neg
55.PINKI	21	17005533	2*2	2 month	no	Present	Absent	RT	uo quad	Absent	Regular	None	ROUND	WD					Absent	well	Normal	hypo	B	B-2	fibroaden	conservative	15 days	yes		neg
56.HIMANI	31	17002325	2*2	1 month	no	Absent	Absent	RT	ui quad	Absent	irregular	None	ROUND	WD					Absent	well	Normal	hypo	B	B-2	fibroaden	conservative	1 month	yes		neg
57.RAMWATI	43	17005678	2*2	1 month	no	Present	Absent	LT	ui quad	Absent	Regular	None	OVAL	WD					Absent	well	Normal	hypo	B	B-2	fibroaden	conservative	1 month	yes		neg
58.TESSA	29	17005667	2*1	2 month	yes	Present	Absent	LT	ui quad	Absent	Regular	None	ROUND	ID					Absent	ill	Normal	hyper	B	B-4	invasive d	MRM in ga	4 month	yes		Pos
59.SAHANA	42	17005655	2*1	2 month	no	Absent	Absent	RT	li quad	Absent	irregular	None	ROUND	WD					Absent	well	Normal	hypo	B	B-2	fibroaden	conservative	15 days	yes		neg
60.SUNITA	90	17003344	2*3	1 month	no	Present	Absent	LT	lo quad	Absent	Regular	None	ROUND	WD	Normal	absent	well define	B	Absent	well	Normal	iso	B	B-2	fibroaden	conservative	20 days	yes	Neg	neg
61.REENA	27	17002255	3*1	2 month	no	Absent	Absent	LT	3oclk	Absent	Regular	None	ROUND	ID					Absent	well	Normal	hypo	B	B-2	fibroaden	conservative	20 days	yes		neg
62.RAJKUMAR	55	13004556	2*1	3 month	no	Absent	Absent	RT	ui quad	Absent	irregular	None	ROUND	WD					Absent	well	Normal	hypo	B	B-2	fibroaden	conservative	1 month	yes		neg
63.KIRTI	25	17006768	3*1	1 month	no	Present	Absent	LT	3oclk	Absent	irregular	None	ROUND	WD					Absent		Normal	iso	B	B-1	fibroaden	conservative	15 days	yes		neg
64.KIRAN	57	17009988	2*1	2 month	yes	Present	Absent	RT	uo quad	Absent	Regular	None	ROUND	WD	Normal	absent	WEll defin	B	Absent	well	Normal	hypo	B	B-2	fibroaden	conservative	1 month	yes	NEG	neg
65.RAJPALI	23	17005657	2*2	3 month	no	Present	Absent	RT	uo quad	Absent	irregular	None	ROUND	WD					Absent	well	Normal	iso	B	B-2	fibroaden	conservative	15 days	yes		neg
66.TAHIBA	21	17004546	2*1	1 month	no	Absent	Absent	RT	ui quad	Absent	Regular	None	ROUND	WD					Absent	well	Normal	hypo	B	B-2	fibroaden	conservative	15 days	yes		neg
67.KOMAL	23	17445566	2*1	2 month	yes	Present	Absent	RT	li quad	Absent	Regular	None	ROUND	WD					Absent	well	Normal	hypo	B	B-2	fibroaden	conservative	15 days	yes		neg
68.JESSICA	28	17005678	2*1	1 month	no	Present	Absent	lt	3oclk	Absent	irregular	None	OVAL	WD					Absent	well	Normal	hypo	B	B-2	fibroaden	conservative	15 days	yes		neg

ABBREVIATION

wd-well defined
id-ill defined
Hypo- hypoechoic
hyper-hyper echoic
an-anechoic
B- BENIGN
SM- Slightly malignant
m-malignant
mrm-modified radical mastectomy
uo-upper outer quadrant
ui- upper inner
lo-lower outer
li-lower inner
lo-lower outer
rt- right
lt-left
neg- benign
pos-malignant
tt-triple test
mtt-modified triple test
NA- NIPPLE AREOLA COMPLEX